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ABSTRACT

This document consists of two consecutive issues of "ASPESA Papers", containing 5 and 6 papers, respectively, as follows: (1) "Human Realities and Technology in Distance Learning" (John G. Hedberg and Suzanne McNamara); (2) "A National Distance Education Admissions System," (Gavin Moodie); (3) "What's in a Name?" (Ian Forsyth); (4) "Distance Education as Rehabilitation," (David Meacham and Catherine Wilkin); (5) "Electronic Mail Evaluation--A Case Study" (Tim Frost and David Roberts); (6) "One-Stop Shop Student Administration and Services for External Students in a Multi-Campus Institution" (Paul Finnane); (7) "15th International Conference on Distance Education, Caracas, Venezuela," (Ann Henderson); (8) "The TAFE Video-Conferencing Breakthrough," (John Mitchell); (9) "Didactical Materialism" (Gavin Moodie); (10) "Distance Education for Health Service Managers--A Strategic Review of Initiatives in Australia" (Jennifer Short); (11) "Distance Education: Access, Equity and Participation and/or Efficiency and Effectiveness," (Michael G. Campion). (DB)

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EDITORIAL

This issue of ASPESA Occasional Papers ranges widely. To begin with we look at the human/technology interface as delineated by **John Hedberg** and **Sue McNamara**. We then look at the possibility of setting up a national distance education admissions system, as proposed by **Gavin Moodie** of Monash University.

Ian Forsyth then poses a couple of vexed questions about computing and about what we mean by 'Open Learning'.

David Meacham and **Catherine Wilkin** then examine the failure of some distance education institutions to deal with the needs of disabled students. They suggest ways in which this might be addressed.

Tim Frost and **David Roberts** conclude this offering with their report on the use of electronic mail in the teaching of a computing subject at Charles Sturt University - Riverina.

John Hardie

HUMAN REALITIES AND TECHNOLOGY IN DISTANCE LEARNING

Human-technology research has focused largely on user interpretation of screen displays. The emerging application of interactive computer-based telecommunications as mechanisms of course delivery means that research should now also go beyond a concern with the screen and examine the broader context of the interaction. This paper argues that the interface consists of a number of levels and that research must address the mix of student characteristics, teacher competencies and technology competencies. Examples of factors to be considered are taken from a study of instructor needs where instructors have been trained in classroom delivery methodologies, but have had little or no prior experience with telecommunications technologies nor with distance education instructional strategies.

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The "technology interface" used in this paper is the meeting point between learner and instructional presentation. In the context of a technology-based instructional environment it is seen as the technological 'face' with which the learner comes in direct contact. Undoubtedly research into the design of learning screen components is an important aspect of the development of effective instruction. Whilst such research must continue, other facets of the learner-technology interaction must also be given greater priority and consideration. Research must go beyond the screen.

This paper concentrates on the *human* side of the interaction, for without greater consideration of the human 'idiosyncrasies' which both learner and instructor (whether directly or indirectly) bring to the learning episode, we run the risk of creating instructional situations which do not and cannot reach their full potential.

Within this context, any technology might be described as a mediator between the three human components of the interaction; the subject matter/content expert, the instructional designer and the learner. It might be argued that the technology on its own is inanimate and lifeless, the human manipulation of the interaction creates the power of the technology for learning. The link between the original expert and the learner is mediated through the attributes of the technology employed and the skills of the instructional designer. The content organisation and the attributes of the technology which the designer employs to present the ideas will help or hinder the learner's comprehension of them. Learners, in turn, have their own individual understanding or conceptual sets which they apply to the presented material to achieve mastery of the knowledge and information it contains.

Current research has focused on the interaction as information presented visually via the screen. As an example Richards (1989) points to the work of authors such as Hudson and Cohen (1985) in illustrating the types of screen interface which have been found most successful. Hudson and Cohen (1985) in their research found that menu-based, text-free interfaces were most successful in the area of medicine. Similarly, Morrison, Ross, Schultz & Odell (1989) examined the variable of screen density. Others have looked at the screen interface in relation to such fields as aerospace, mathematics operations, and in providing a framework for embedded training in the application of complicated packages. Certainly one other area of research which should be acknowledged is that in the field of artificial intelligence and the development of expert system. However, the application of these to the education and training arena is as yet in its infancy.

Although inevitably one immediately assumes the 'screen' to be linked to a computer, and in the majority of cases this is true, we are now also seeing the integration of the video, videodisc, telecommunications and other disc technologies capable of high resolution, still and motion vision. Multimedia is becoming a buzz-word and with it comes greater potential, greater complexity — and problems for the learner, the instructor, and the instructional designer.

Arger (1989) talks about the identity crisis of instructional designers working in distance education institutions. His suggestion that "staff with schizophrenic professional identities are not uncommon"(p. 79) could also be applied to instructors involved in the development of instruction for technology-based systems and for learners faced with the 'adventure' of interacting with, and presumably learning from, such systems. In the ideal instructional situation the storage, transmission and presentation mechanisms become somewhat irrelevant to the instruction and to the learning achieved. However desirable this may be, it is not common practice in education yet. This may partly be due to the rapid advances in the technological field and the fact that much of the educational application of the technology continues to be technologically driven rather than instructionally driven. The pressure to be involved with and use the latest technology continues to fuel a 'catch 22' situation. Relatively short time spans are available for research and development and the demands are predominantly for a product which can be 'marketed'. Educational priorities often take a 'back seat' in preference to economic considerations; many suffer from inadequate staffing, and other competing priorities which prevent adequate funding being applied to research and development.

Some noteworthy innovations have been produced despite the difficulties and several of these projects have been of great benefit to education, although many are not noted for their contribution to education! For example, Law and Sissons (1985) noted that 'trivial behaviours' were being developed at the expense of personal understanding in many so-called innovative computer courseware packages. Similarly Edwards and McNamara (1989) suggested that another consideration in the development of technology–based instruction for open learning and distance education lies in the emphasis placed on operational skills as opposed to the more intellectually challenging skills of analysis and synthesis. This suggestion might become even more relevant in the light of the development of integrated technologies, for although it is not essential for the user to comprehend, or even be aware of the underlying mechanics of instructional materials, the learning style of the learner may necessitate their understanding of at least the basic workings of the technology. Similarly, the instructor in the role of either a team member or acting as a 'one person' design team within a smaller institution has to cope with similar challenges.

It is in this context — the instructional episode — that several levels of encounter between humans and technology can be identified. Each level can contribute to achieving an ideal—technological transparency in the learning situation.

Levels of Encounter between Humans and Technology

The basic plan for the ideas presented in this paper is shown in Figure 1 — a model of the levels involved in the human-technology instructional interaction. It is our belief that designers and developers must endeavour to utilize mechanisms which can emulate some of the teacher-student interaction of the classroom (see also Laurillard, 1987). The following discussion will examine some of these levels.

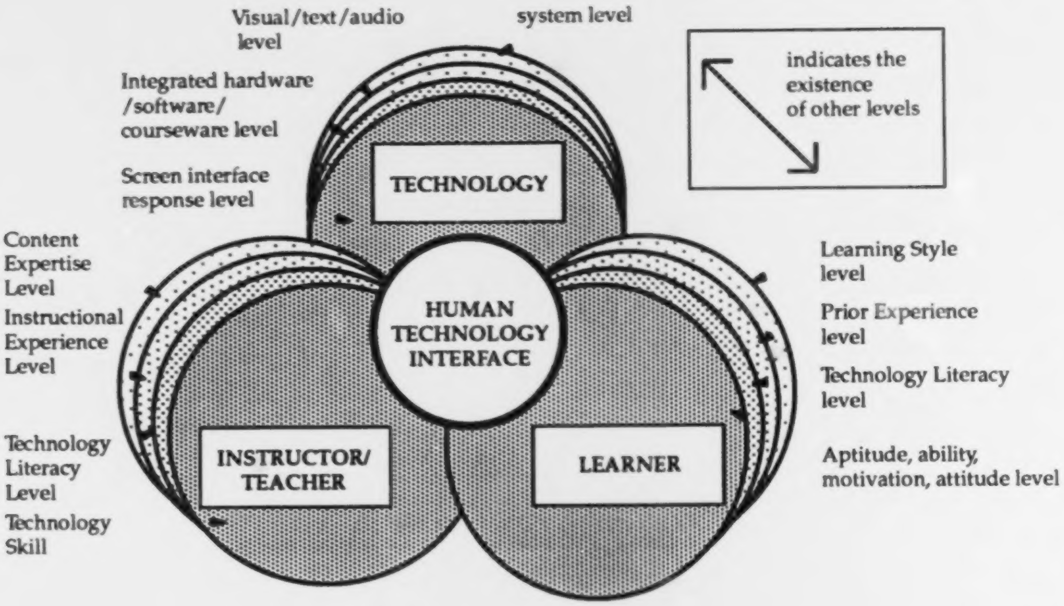
Visual/text/audio level
system level
Integrated hardware /software/ courseware level
Screen interface response level
indicates the existence of other levels
TECHNOLOGY
Content Expertise Level
Instructional Experience Level
Technology Literacy Level
Technology Skill
HUMAN TECHNOLOGY INTERFACE
Learning Style level
Prior Experience level
Technology Literacy level
Aptitude, ability, motivation, attitude level
INSTRUCTOR/ TEACHER
LEARNER

Figure 1: Levels of encounter in the human–technology instructional interface (Hedberg & McNamara, 1990)

Learner Levels

The main consideration in the human–technology interface is the learner. Ultimately it is with the learner and the learner's interaction with the technology that distance learning materials will succeed or fail. Hall (1987) claims that technological feasibility is not enough. Acquisition of information and communication skills must be accompanied by skills of analysis, synthesis and appropriate judgement. There have been continual advances in software and hardware, but what about courseware? In addition, what about developments in production tools, presentation tools and multiple task tools? Is the teacher/instructor/student supposed to be competent with some all of these? What about user expectations, designer assumptions and expectations? So instead of just talking about technology in terms of software, courseware and hardware, we might also talk about 'warmware' support for the end user.

Much prior research in the area of instructional design has dealt with the role of individual learner characteristics and in particular learning styles in the instructional and learning process. This research has pointed to individual preferences for learning via different modes, to differences in the amount and types of feedback and responses and reinforcement required in individual programs. Whilst research on the interface has examined general factors such as screen typeface (Richards, 1989) little emphasis has been placed on factors such as individual preference for modes of instruction via visual or aural modes. The advancement of integrated technologies would seem to make such research even more crucial.

Similarly, earlier research (e.g. Hedberg, 1976) has indicated differential aptitudes for learning under different circumstances. Hence the use of complex visual, aural or integrated program components may not be the most ideal for particular aspects of learning. Subject areas associated with such as social learning must consider the need for 'human' interaction (Hedberg, 1989). Certainly one could assume that in the application of systematic instructional design procedures such considerations would form a natural component. However with the predominant emphasis on the technology and the task, such considerations are often overlooked.

Teacher/Instructor Levels

One of the major assumptions which seems to predominate in technology-based in struction today is that learners are familiar with both the technologies and the modes of instruction associated with these technologies. An example of the importance of such considerations might be illustrated taken from a project currently underway in Victorian rural secondary schools in Australia. Teachers trained in classroom learning techniques, and students used to classroom learning situations or learning by print based correspondence courses are now learning via interactive technology-based distance education modes.

One of the initial assumptions in this project was that students may have had no prior experience with the computer interface, nor with the use of teleconferencing. Choices therefore were based on examination of factors including prior experience from the beginning of the project. In the three years that the project has now been underway the technology interface has gradually become a secondary concern for those students using the system as they are now reportedly competent in dealing with the technological components to the extent that preparation for an interactive class is in the hands of the students rather than in a component of teacher control. Similarly teachers have reported students using the system have shown much greater responsibility for their learning although such reports are anecdotal rather than research-based (Wilson, 1989).

Technology Levels

Criteria for distance education explicitly mention the necessity of providing two–way mediated communication (Garrison, 1989), but at the moment there are shifts in conceptualization and an inadequate description of what is required for generic and specialized programs. Recently, fortunately for the technophiles, Ohler (1988) claimed there will always be those who prefer to study via technology. However within the same breath, Drea & Armisted (1988) claim a high percentage of students would still rather study on-campus.

Although, as Foks (1987) contends, technology is not synonymous with Distance Education and Open Learning, technology is playing an increasing role in the development and delivery of instruction. Modes might be learner centred but design (whether instructor-controlled or independent) is only as good as the competencies of the team/individual who designed it — and the individual learner using it. For Foks (1987) Open Learning Distance Education is a "state of mind". The only limitations are imposed by the skills and knowledge of the students, educators and administrators, accreditation and licensing of courses, community and industry attitudes and available resources.

Wedermeyer (1986) maintains that with both existing and emerging systems educators needs to become more technologically literate. In the project mentioned previously in this paper technology-literacy played an important role in the selection and development of curriculum for use via the system. For the most part, neither teachers nor students were initially technology literate, especially in the use of teleconferencing associated with the use of computer-based communications software for teaching. Three years on, students are themselves developing extended problem-solving skills, and have accomplished a literacy level which at the basic level allows them to troubleshoot for minor and some more major 'hiccups' associated with the developmental nature of the project.

Adult Learners at the Human–Technology Interface

Many of those coming to terms with technology in higher education are representative of adult learners. With greater emphasis being placed on student involvement in learning and demands being made for a broader knowledge base, learners in open learning programs are being compelled to venture into areas which were once the realms of specialists.

Word processing and literature searching are but two examples. Traditionally assignments were hand written or an author employed a typist to create a respectable assignment presentation, if handwriting skills were lacking. The proliferation of word processors has changed that. Assignments must now be at least typewritten, preferably word processed and spellchecked and, in some instances, be presented with integrated illustrations and graphics laid out using a page layout program. Hard copies are not always an advantage either. Some requests are for assignments on disc, or in the case of distance education, assignments are downloaded via a modem or placed on a bulletin board.

Unfortunately the provision of sophisticated technology has often taken for granted the human capability to use them. Many writers have described the complexities of the human–computer interface. Ben Shneiderman, given the problem of technostress as it applies to the computer–user states:

> *Frustration and anxiety are a part of the daily life for many users of computerized information systems. They struggle to learn command language or menu selection systems that are supposed to help them to do their job. Some people encounter such serious cases of computer shock, terminal terror, or network neurosis that they avoid using computerized systems. These electronic–age maladies are growing more common; but help is on the way!*
>
> *...the diverse use of computers in homes, offices, factories, hospitals, electric power control centers, hotels, banks, and so on is stimulating widespread interest in human factors issues. Human engineering, which is seen as the paint put on the end of a project, is now understood to be the steel frame on which the structure is built (Shneiderman, p.v., 1987).*

McNamara (1988) has carried out a number of studies of adult learners working in technology–based contexts. She has gathered data in working with students in a self–instructional computer environment characteristic of those in open learning sites. Students (with differing levels of computing experience) were asked to complete a set of tasks requiring the acquisition of information from a database on CD–ROM. Videotapes of the task sessions, survey questionnaires, and discussions with participants were used as methods of data collection.

McNamara described the processes used by two initial technology users, one having the required skills, knowledge and understanding of the technology, the second with little knowledge, no experience and no pre–requisite skills. In these studies the technology problems which hindered the learning progress were classified into three broad groups:

1. Computer based (procedural, operational)
2. Application package related (programs)
3. Human related (attitudes, expectations).

Several participants had never used a computer before. Not only was the idea of data storage on a small disc unfamiliar to them, so too was the means of accessing the disc. The necessity of knowing specific identifying words, or pressing specific keys for the generation of particular information and the means of correcting errors in typing or input proved to be some of the most prohibiting factors. At a deeper level, several participants were willing to accept the first instance of information which appeared on the screen, without checking for details or the appropriateness of the response. They firmly believed that the computer could not err (even if the error was in human input), and therefore the information could not be incorrect. Beside the need for keyboard skills (a skill which several participants did not have) which created a barrier to effective use of the technology, many students concentrated more upon following correct procedures in order to derive the appropriate information, rather than the information itself or the purpose of the exercise.

A related problem was that some current application software appears to the novice user to have been written by those "in the know", and although most applications programs incorporate "help" mechanisms (approximately twenty-two screens of help were found in one database program) these functions are beyond the grasp of the novice user or one unfamiliar with the "language" of how to get to, and be able to read the "Help" file. The most popular solution to difficulties encountered by participants in this study was to 'head for the wall, switch off the plug and start again'!

When using software programs, the differences between expert and novice users become even more pronounced. Most obvious was the time taken to complete tasks which increased as the response required by software became more obtuse and less inherently conceptual (Hedberg & McNamara, 1985). With regard to differences in learning styles and personality approaches to learning, those who like to know what's happening each step of the way have greater difficulties in using the technology on their own than those whose approach to learning allows them to simply 'press on regardless' without the need of knowing what the computer is doing. Those who see the challenge as exciting and a new learning experience have considerably fewer frustrations than those for whom the thought of sitting at a workstation is tantamount to torture. How often does one have the time to thoroughly examine a package or read all the associated documentation before it must be used?

Users of technology in distance education are no different. It is easy to describe the potential offered by communications packages, bulletin boards, design packages etc, but until the need for their use arises such descriptions fall into the realms of 'nice information to be remembered at a later date'. Many of the present technology users have come to their encounter with the technology via a need. Associated with this need are time constraints and often limited access to the technology. The suggestion was made that a good tutorial would solve much of the dilemma. However, as one user pointed out, there was usually far too much to remember from one interaction, and if one has limited time, remembering it for the next session, which may be a week or weeks later was difficult. Further, for many students learning at a distance, tutorials are often discovered 'after the fact', (when the skills have been learned and the assignment completed).

The humble telephone line is perhaps a simple but appropriate illustration of the potential and the problems of the human–computer interface in distance education. Overcoming the diversity of geographical locations is one of the more traditional roles of telephone technologies. Today, the integration of computer technology with the telephone network has generated a seemingly endless array of possible communication links to such an extent that geographical isolation is now a comparatively minor concern for the delivery of education at a distance. In human terms, practicalities and operational skills are the more significant concerns. Presumably everyone knows how to hold a phone conversation, but not everyone has the immediate 'party-line skills' required by teleconferencing, nor at a higher level do they have the required skills (nor in many cases, access) to tap into the vast array of technologies available at the other end of the phone line.

The establishment of clusters of schools in rural Victoria networked (using telephone lines) via computers and multi-point software, audio teleconferencing links, fax units with supporting scanners, laser printers and video equipment (McNamara, 1989a) demonstrates the technology basis for the current approach to distance education (Matthews and Brookshaw, 1988). This combination of technologies suggests potential integration with the higher and continuing education sectors in the future.

Often these devices can be accessed without requiring high-level operational expertise. The availability of the applications software enables the learner and the teacher, with the help of the instructional designer, to work at a distance without the need for as many specialised skills. Consider for example, the use of prepared art materials, templates for financial analysis or desktop publishing templates. All the execution can be controlled by simple previously agreed-upon design decisions. Increasingly groupware, when linked with appropriate user-understandable protocols, can enable joint sharing of information and equal user contribution to the end product. Bulletin boards and telememo systems are simple ways through which we can share thoughts and problems.

To summarise the concerns that have grown from the real practice of teaching with technology McNamara (1989) presents a checklist of problems described by teachers as they approached the technology and managed the interface for learners.

Distance education by interactive telematics: A checklist for teachers

In a Telematics mode your students will not be able to 'see' you in the conventional sense, so when planning and holding your classes you and they will have to develop other senses and fine tune other sensitivities, in order to be responsive to your and their needs and requirements. This takes time and work, so don't expect everything to happen immediately. Be patient and learn by experience.

Each learning situation is different, and the usefulness of factors included in this list will differ accordingly. This checklist is by no means exhaustive, but it is the compilation of experience and inexperience, from the practitioner's position.

A. Planning: practical and administrative checks

1. *How much support can you count on from the school?*
2. *Who are my students? Who is studying what? What are they like?*
3. *Who's teaching what in our cluster? Who can I ask for sympathy, understanding and help?*
4. *What's happening when?*
5. *What does their set up look like?*

Get to know as much you can about the people and the situation before you begin teaching, particularly if you have not used this approach before.

B. Situational and operational checks

1. *Is it all together so that its easy and comfortable to use?*
2. *How do I know what goes where?*

If it's organised properly it doesn't look frightening! If it doesn't look frightening then it quickly becomes easy to use.

C. Trouble shooting and back–up checks

1. *How do I try to ensure that nothing goes wrong with the equipment or my work disks?*
2. *How do I troubleshoot?*

D. Materials development checks

1. *What are my objectives for this unit?*
2. *What resources are available to achieve these objectives?*
3. *What types of learning approaches are available?*
4. *Do the objectives require visual, text or concrete materials?*
5. *Have I left myself enough time to develop the required materials which I don't already have?*
6. *Which materials do I use when?*
7. *Which students need what?*
8. *How do I deliver?*

Put yourself in your student's shoes. How would you like to learn/be taught? What would you need/want to know and how would you like different sorts of information and tasks presented?

E. The first few sessions

1. *How do you do?*
2. *How do you (the student) feel about learning this way?*
3. *What if something goes wrong?*
4. *How much do they know?*
5. *What are the steps in getting the equipment going?*

Don't panic! You are learning and so are they. It might take a few attempts, but eventually you will develop your own style.

F. Practical lesson checks

1. *Do I have a consistent lesson pattern?*
2. *What do I say when we begin each lesson?*
3. *Have I got the instructions, clear, concise and to the point?*
4. *What happens if they haven't done the required pre–reading and homework?*
5. *Have I got a range of activities in my lesson?*
6. *Have I allowed sufficient time to teach (and for students to learn) the new component?*
7. *Am I sure that my students understand the work?*

It's better to be over prepared than underprepared.

G. Learning characteristic checks

1. *Gender differences*
   Are there more girls than boys in the group, or vice versa? Are the boys or the girls likely to dominate in this topic? How can I make sure that both girls and boys participate equally?
2. *Individual differences*

Prior experience:

What experiences relevant to this task/topic has each student had? What implications has this for the manner in which the topic is developed? What kinds of challenges, activities, assignments are needed in relation to the student's prior experience? Will their prior experiences serve to motivate or demotivate the student? What kinds of assistance, e.g: keys, hints, feedback, will I have to include in the topic work to cater for this student's past experience (or lack of it)? What prior knowledge of the topic, should/do students have?

Learning styles:

Is the information mainly visual or text=based? Does the student need further explanations, alternative modes of delivery? What procedures should I use? E.g.: rule–example, example–rule, discovery mode. Should this student work in a group or on his or her own? Is this student likely to continue on their own or will they need assistance from me or from other students?

Existing skill levels:

What are student's general skill levels? (reading, writing) What specific skill, aptitudes, abilities have the students to use with regard to the present topic?

(from McNamara, 1989b, p8–14)

Reconceptualising the Design

To refocus on the person for whom the system is meant to be catering, there are some common questions we have all asked: What are the learner's needs? Has data been collected from the learners and have the results been included in the final materials design? The learners bring to the interface their characteristics, experiences and expertise which will test the full potential of the technology, but how can the designer of open learning materials approach the human–technology match?

Such a concept needs first an examination of the reasons for using technology in the teaching/learning process. Recent work (Hedberg (1989)) has tried to reassess the functions of technology in terms of the type of tools required for different types of learning activities. Consider four key activities for open learning—knowledge generation, knowledge presentation, knowledge communication and information management. The designer needs first, to focus on the underlying activity, then secondly, define a link between the concept presentation and how the students must work with the information to produce their own conceptual understanding of the ideas and issues. Foremost in this design concept is the idea of allowing the student to manipulate the concepts directly, not to require the designer to present information in a conceptual model where all has been decided in advance and the student can simply learn someone else's ideas.

In working via distance education or open learning modes of instruction, inevitably one always finds an easier method after it is required. While the manual might hold the solution, accessing the manual is often viewed as a divergence (and not always a worthwhile one) from the task at hand. Having to continually refer to a manual not only destroys valuable concentration, it can also be confidence destroying—if not soul destroying.

A broader focus on design considerations is required when using and providing technology–based delivery systems in open learning. The studies referred to in this paper highlight some downfalls of the present provision of technological facilities for independent study by students. The technology alone will not improve the quality of the learning. It might allow for more aesthetic visual presentation, but in order to reach an effective human–technology match, a understanding is required which will ensure competent, efficient and effective usage.

From the point of view of open learning, the technology of the computer must be supplemented by other appropriate mechanisms, such as the use of teleconferencing, video materials of some form, or direct contact with a human tutor. Courses employing technological delivery must ensure that participants not only have access to appropriate and compatible technologies, but also that they are aware of, understand, and are competent with the delivery technology to ensure its effective use. The focus should be on the information delivered via the technology rather than on the technology itself, with packages viewed as a means to an end rather than as the most important element of the interaction. In terms of personality differences and the implications of differing learning styles, courses and packages utilizing technology-based materials must incorporate design measures which offer alternate paths and options for the successful learning encounter.

Laurillard (1987) has written about of the development of multifaceted design models and Hedberg (1988) has mentioned the use of templates as simple ways that link the use of technology to regular tools which are in common (preferably daily) use by the student. For example, the use of the simple device of a spreadsheet with a prepared mathematical model allows at least three levels of processing.

First, students may type their own numbers into a prepared proforma, the package will calculate according to the prepared algorithms and by changes in different elements will show a relationship between inputs and results. Changing the inputs allows the student to model different results based on the input assumptions. A second level might involve the translation of the numbers into another form of representation such as a chart. This second level may have been already prepared and the links simply updated as the learner changes the numbers in their first proforma or the student might use the links between spreadsheet and charting routines to clarify or further investigate relationships (especially if they are a visual learner). A third level would enable the student to change the underlying assumptions on which the analysis is based—the learner might decide to investigate the algorithms devised for the relationships between inputs and results. By changing the formulae, the learner can extend beyond the interaction designed by the subject matter expert and the instructional designer. At both the second and third levels, the learner is manipulating the technology to generate knowledge rather than simply to watch its presentation.

While recognizing that learners at a distance do not have easy access to technology, we have the tools to manipulate information so that adult learners do not have to passively accept what is presented to them. Technology allows the user to decide on the representation and to change the assumptions and the algorithms. It is up to the other human side of the interface—the instructional designer—to meet the challenge of the technology and design materials which are open ended and support the learner at a distance.

Conclusion

In the project described in this paper, practical aspects of establishing a telecommunications link formed an initial concern of teachers being introduced to the system. However it was noted after a twelve month period in gathering suggestions for future initial users that these same teachers no longer focused on such aspects (McNamara, 1990).

Associated with levels of interaction are also considerations of follow-up activities. Such activities illustrate the importance of both research and development in going beyond the interface. In essence it is time that educational technology developors, implemented a more holistic, integrated approach, especially in dealing with integrated technologies, which recognised that the screen interface is but one consideration in promoting learning technologies. Future research might examine instructors'/teachers' needs and student needs at all levels of the interface, particularly in relation to student control, independent learning, adult learning, distance education and open learning.

References

Arger, G. (1989) The Developer's identity crisis. In M. Parer (Ed.) *Development, Design and Distance Education.* Churchill: Gippsland Institute of Education Centre for Distance Learning, pp 79-87

Diamond, R.M. (1989) *Designing and Improving Courses and Curricula in Higher Education.* San Francisco: Jossey Bass

Edwards, P. & McNamara S. (1989) Developing a distance education facility within a Faculty of Education. Monash University Research Report .

Foks, J. (1987) Towards Open Learning. In In P.Smith & M. Kelly (Eds.) *Distance Education and the Mainstream.* U.S.A.: Croom Helm, pp 74-92.

Garrison, D.R. (1989) *Understanding Distance Education. A framework for the Future.* London: Routledge Education.

Hall, J. (1987) Bridging the technology-pedagogy gap. In P.Smith & M. Kelly (Eds.) *Distance Education and the Mainstream.* U.S.A.: Croom Helm, pp. 44-56.

Hedberg, (1976) *The effect of visual realism and cognitive style on the performance of simple and complex perceptual tasks.* Dissertation submitted in partial fulfillment of Doctor of Philosophy Degree, Syracuse University, Syracuse NY.

Hedberg, J.G. (1988). Technology, Continuing Education and Open Learning or Technology 1 — Bureaucracy 0. In J. Steele, and J.G. Hedberg (Eds.), *Designing for Learning in Industry and Education.* Canberra: Australian Society for Educational Technology, pp 90–94.

Hedberg, J.G. (1989). The relationship between technology and mathematics education: Implications for teacher education. In Department of Employment.

Education and Training, *Discipline Review of Teacher Education in Mathematics and Science*. Volume 3. Canberra, ACT: Australian Government Publishing Service, pp. 103–137.

Hedberg, J.G. and McNamara S.E. (1985). Matching Feedback and Cognitive Style in Visual CAI Tasks. Paper presented to the Annual Conference of the American Educational Research Association, Chicago, May.

Hedberg, J.G., and McNamara, S.E. (1989). The human–technology interface: Designing for open and distance learning. *Educational Media International., 26*(2), 73–81.

Hudson, D.L., & Cohen, M.E. (1985) The role of the user-interface in a medical expert system. In M.J. Ackerman (Ed.) *Proceedings of the ninth annual symposium on computer applications in medical care* N.Y.: Institute of Electrical and Electronic Engineering, pp. 232-236.

Laurillard, D. (1987). *Interactive Media: Working methods and practical applications.* London: John Wiley.

Law, M. & Sissons, M. (1985) The Challenge of Distance education. In R.H. Rosenblum (Ed.) *Involving Adults in the Educational Process: New Directions for Continuing Education*. San Francisco: Jossey -Bass.

Matthews, W. and Brookshaw, J. (1988) Distance Education in the Mallee Secondary College Cluster. In J. Steele, and J.G. Hedberg (Eds.), *Designing for Learning in Industry and Education.* Canberra: Australian Society for Educational Technology, pp 113–116.

McNamara, S.E. (1988) "Twelve months on". In I. Margita (Ed.) *Cat's Whiskers Curriculum and Technology in Schools — What's happening in supporting kids education in rural schools.* Proceedings of a conference organised by the Advisory Committee for Resource Agreement 3 Using Technology for the Improvement of Participation of Country Students in Years 11 and 12. Bendigo, pp 37-39

McNamara, S.E. (1989a) Support Services for RA3 (Telematics in Distance education Projects)—Staff Development and Course Design and Delivery. Unpublished report for the Victorian Ministry of Education, February.

McNamara, S.E. (1989b) Distance education by interactive telematics. In N. Elliot *Teaching tips from the inexperienced.* The Victorian telematics manual. Melbourne: Ministry of Education.

McNamara, S.E. (1990) Advice for the first time telematics teacher: Information for teachers from teachers . A compilation of suggestions from teachers using the Mac–Fax–Duct system.

Morrison, G., Ross, S., Schultz, C., & Odell, J. (1989) Learner preferences for varying screen densities using realistic stimulus materials with single and multiple designs.. *Educational Technology Research and Development*, *37*(3), 53-60

Ohler, J. (1988) An idea: For some distance education will be preferable to local education. *Online Journal of Distance Education and Communication BITNET* Issue 1.

Richards, B. F. (1989) Should instructional designers design expert systems? *Educational Technology Research and Development*, *37*(3), 63-71

Shneiderman, B. (1987) *Designing the User Interface: Strategies for Effective Human–Computer Interaction*. Reading, MA: Addison Wesley.

Smith, P. and Kelly, M. (1987) *Distance Education and the Mainstream*. London: Croon Helm.

Wedermeyer, D.J. (1986) The new age of telecommunications: setting the context of education. *Educational Technology*, *26*(10) 7-13.

Wilson, G. (1989) Technology in Distance Education. Paper presented at the biennial conference of the Australian and South Pacific External Studies Association, Churchill.: Gippsland Institute of Technology.

A NATIONAL DISTANCE EDUCATION ADMISSIONS SYSTEM

This paper proposes discussion of the feasibility of establishing a national distance education admissions system.

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In *An apple for the teacher?* (Brumby; 1989:65) the House of Representatives Standing Committee on Employment, Education and Training recommended that:

> *the Department of Employment, Education and Training establish as a matter of urgency a national database of all Australian tertiary educational courses. The information on the database should be widely available through TAFE computer networks and, in rural and remote areas, through Australia Post offices and agencies.* (Recommendation 5)

The Committee made this recommendation because, it believed that information about tertiary educational opportunities Australia-wide should be available to Australians wherever they live (para. 3.90). This was considered an essential feature of any strategy to improve access to education, the Committee noting that several institutions had established systems using new technology to disseminate information of this type (para. 3.88).

Ironically, DEET, or more precisely its predecessor CTEC used to maintain just such a national 'database' of all Australian higher education courses, now published by Hobson's Press as *The Directory of Higher Education Courses.* I do not know why the Brumby Committee thought that the 'database' should be in computer form: as I said in response to the Committee's report, it seems to me that the *Directory* is more accessible and certainly cheaper in book form.

Nonetheless, the Commonwealth seems to be committed to the view that 'new technology' has important applications to education, particularly distance education, and that technological innovation has been slowed if not stalled by institutional inertia. Consequently, of the $2.785M allocated from the National Priority (Reserve) Fund to support distance education in 1990, $1.85M went to video conferencing, and of the balance, only $50K was allocated to a project not directly concerned with some form of computer based learning (Dawkins; 1989:70).

While the high technology 'wolf!' has been cried many times in the past, and several of the high technology applications proposed for distance education appear to be ambitious if not fanciful, computer based technology does seem to offer a way to improve access to distance education through a national application system. That is to say, the ostensible ultimate aim of the Brumby Committee - improved access to education - could be served in distance education not so much by a computerised course database (again, the *Directory of Tertiary External Courses in Australia* 1990 seems to serve the need well enough in book form) but by an application system which gives prospective students an opportunity to choose between various study options in a simple, convenient and inexpensive manner. Computer based technologies make such a system feasible.

The Models

The obvious models for a national distance education application system are the State tertiary admission centres which process (mainly school-leaver) applications for admission to on campus, mainly undergraduate, courses. These systems allow prospective students to apply for admission to up to eight courses in any of the institutions participating in the system. A common application-selection protocol is established by each system, but within that protocol variations in application and selection procedures, criteria, forms, etc, are permitted.

The tertiary admission centres were presumably established by institutions to reduce uncertainties in estimating how many enrolment offers would be accepted and to reduce multiple processing of applications. No doubt much of the attraction of tertiary admission centres for institutions lies in automated selection, based on tertiary admission scores. These advantages do not hold for distance education. But tertiary admission centres also have considerable advantages for prospective students, in reducing multiple applications and, importantly for distance education, in bringing the range of courses offered to students' attention within a common framework. Herein lies the prospect of improving students' access to distance education: a national distance education application system would remove much of the serendipity in discovering study options.

Elements of a System

A national distance education applications system would need, minimally, a common top page of an application form (to describe it in terms of a paper based system). The top page would include the applicant's name, address and up to eight course priorities. Application forms could be distributed and collected by institutions as at present, and each institution or course could design the body of their forms to suit their own needs. But each receiving institution would at least undertake to send a copy of the application form to each institution listed amongst the student's priorities. There would be a target closing date and a target date by which institutions passed on copies of forms with multiple course choices.

That, it seems to me, is the minimum that would be required to establish a rudimentary national distance education application system. In applying for one course students' attention at least would be drawn to the existence of other courses offered by other institutions. Should they indicate a preference for more than one course they would know that their interest would at least be drawn to the notice of the selection officers of the other courses, although they may be asked subsequently to provide further information.

More ambitiously, one may envisage a national distance education application centre which would act as a clearinghouse for all applications for all distance education courses. Such a centre could still accommodate a variety of different approaches - and, of course, selection decisions would remain firmly within the province of each institution - but it would require a shared framework which I suspect many institutions would find irksome at this stage. Perhaps one could start with the minimalist position with the aim of progressing towards the establishment of a central admissions agency, should it gather support.

Conclusion

Students would have a lot to gain from a system which, first drew to their attention the range of distance education courses available at the time they sought admission, and secondly, which gave them an opportunity to express their preferences for several different courses using one procedure. Institutions, too, would gain through a wider dissemination of information about their courses, reduced multiple processing of applications, and reduced multiple offers. It can hardly be doubted that the Commonwealth, too, would see benefits in such an arrangement. However, any national distance education applications system would encounter considerable difficulties, and no doubt it could appear to institutions as either threatening or superfluous. Nonetheless, I believe it is time at least to consider the merits of such a proposal, and I would welcome debate on it.

References

Brumby, B. (1989) (Chair), *An Apple for the Teacher? Choice and technology in leaming.* Report of the House of Representatives Standing Committee on Employment, Education and Training, AGPS, Canberra.

Dawkins, J.S. (1989) *Higher Education Funding for the 1990-92 Triennium*, AGPS, Canberra.

Hobson's Press (1989) *The Directory of Higher Education Courses 1989/90*, Hobson's Press, Sydney.

Ryan, Y. (1989) (Editor) *Directory of Tertiary Extemal Courses in Australia 1990*, University of Queensland, St Lucia.

WHAT'S IN A NAME?

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I was sitting in a conference hall not 10 000 miles from here when Greville Rumble [1.] was being erudite on the subject of computer mediated conferencing (C.M.C.). I listened with a growing sense of unease.

Four months later, I was reading through a collection of articles assembled by Michael Moore and Christopher Clarke [2.] when I came across an article by Phillips, Santoro and Kuehn [3.] on computer mediated communication. My unease returned.

I suspect that I have finally found the cause of that unease — the use of the word "mediated" between the word "computer" and "conferencing" and between "computers" and "communication".

As a person who uses various computers on a daily basis at work, at home and for pleasure and study; I am confident that, apart from the artificial intelligence/expert system field, most applications in computing are dumb. Remember the old (ten years is a long time in computing) adage 'garbage in garbage out'? That statement still holds true today.

Let me just work through an example

> You are presented with a TASK.
> You want to connect to a messaging system
>
> What are the CHALLENGES?
> What computers will you have access to?
> What software packages?
> Is the software compatible with the messaging system?
>
> What RESEARCH is required
> You ring up and talk to a person!!!

And that is what I am uneasy about: you cannot buy a computer, plug it in and expect the computer to MEDIATE your communications or conferences. The decisions are made and the tasks are carried out by people. (This may not be the case in the future). What the computer does provide is a management tool to facilitate communications and conferencing. As such, the use of the term "mediation" provides too much power to the computer and suggests that these activities 'run themselves'. This is not the case. So please can we drop the middle "M." and just say "C. C."?

Another cause for concern is the use of the term "Open Learning" and is being adopted by institutions without an understanding of the implications of open learning and that it is more than a new name for correspondence schools[4.] The fact is that there are relevant and appropriate uses of "closed learning" within open learning. In particular this is appropriate in the acquisition and certification of basic skills, competencies and with occupational health and safety issues.

My unease is heightened when the chance to "throw" some technology at a course is seen as making that course "open". On the contrary, any unnecessary introduction of technology may limit access either through increased cost or the need to schedule contact times. It may lead to increased anxiety levels or alienation for people with a non-technology background. The end result will be a drop in participation rate leading to an increase in cost per student. The course then becomes too costly to present and is closed down. How open is a course that is closed down?

These are but two of many labels or names that I find a cause for concern and they are not unrelated. If CMC, sorry CC, continues to be pushed as a communication technology then there are concerns for access and participation in open learning.

I could go on to write about "competency based testing" as a label and the ramifications of the various interpretations of that label. Or what do we mean when we talk about multi-skilling or re-skilling of learners in a distance education setting. I could but I'm starting to feel a little depressed.

Notes

1. Rumble, Greville, "Interactivity, Independence and cost" Conference Presentation. ICDE and OU Conference. Downing College Cambridge Sept 1989

2. Moore M. and Clark G. Christopher (Eds), *Readings in Distance Learning and Instruction* No.2. Pennsylvania State University 1989

3. Phillips Gerald M., Santoro Gerald M. and Kuehn Scott A. "The Use of Computer-Mediated Communication in Training Students in Group Problem-Solving and Decision Making Techniques." in Moore and Clarke above

4. This is not intended to reflect on any particular correspondence school or college or any course. I recognise that many correspondence institutions and the courses they produce are excellent teaching and learning materials.

DISTANCE EDUCATION AS REHABILITATION

This paper discusses the place of distance education as an agent of rehabilitation for patients with spinal injuries. It deals with the failure of distance education to address the educational problems of the disadvantaged where the current emphasis on institutional efficiency is seen as a phenomenon accelerating a trend towards providing for the most able rather than the least. The educational needs of the individual and the state are examined in the light of the nature of the disability and its educational consequences. This paper proposes a practical system which, through the use of distance educational techniques would provide the individual with the option to realise their potential in a wider range of employment than is commonly available for such victims.

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The Myth and the Reality

The rationale behind the expansion of distance education is focussed on its ability to provide educational experiences to those who would be otherwise unable to undertake formal study, by virtue of their inability to attend a campus on a full or part-time basis. To a degree distance education in Australia has met the demands of such a clientele. It provides advanced, professionally orientated courses to those located in remote areas, lacking access to transport, and particularly those rendered immobile by their professional commitments.

The latter group has benefited to the greatest degree by the expansion of distance education. The areas of teaching, nursing, business and computing provide upgrading programs for professionals wishing to improve their qualifications in an age of credentialism. This phenomenon is not unique to Australia. as the Open University of the UK (which unlike Australian Universities, demands no formal educational qualifications for entry into first degree courses) still draws the majority of its undergraduates from graduates or diplomates of other universities.

A significant factor to be considered in these discussions is that the majority of distance education students in Australia come from large urban areas. The prototypal distance education student in this country is not a socially or geographically isolated, neglected individual, but a fully employed, upwardly mobile, young urban professional.

This trend is reinforced by DEET's interest in expanding provision in areas of perceived national need, resulting in a concentration in such areas as accounting, management, computing, engineering and related sciences. To a lesser degree, shortfalls in vital areas of public service such as nursing are also addressed. Social sciences and humanities are regarded as less significant areas for expansion in distance education since they are remote from identified national priorities.

What should be noted here is not so much the change of emphasis on certain discipline areas, but the change in the underlying philosophy of educational provision at the tertiary level; a change most easily engineered in the distance mode. This philosophical change clearly indicates that the prime function of the tertiary education system is to serve the needs of the State, not the individual. Given that this change is inevitable, this paper will explore the possibility of using distance education to simultaneously address the needs of both the State and a group of severely disadvantaged individuals, hitherto largely neglected by, but capable of benefitting from. distance education and contributing to national priorities.

The myth that distance education meets the needs of such clients could then become a reality.

The Goal

The suggestions in this paper are meant to achieve goals appropriate to the needs of both the State and individual.

The State's principal objective appears to be acquiring productive workers in areas which will contribute to the national economy, particularly in terms of reducing the current account deficit. Some needs identified include: software development, industrial design, production control, financial management and telecommunications. Increased domestic productivity in these areas is believed to be a way of increasing capital inflow into the country or at least reducing outflow, by a means other than regressive fiscal policies based on high interest rates and economic recession. The clients' needs are somewhat different: empowerment and autonomy through living a productive life in occupations with prospects of continued employment, and promotional opportunities.

The Client

Bedbrook (1985:18) divides the incidence of spinal injuries into traumatic and non-traumatic causes, which gives some guide to the potential distance education student group afflicted by spinal injuries in Australia. Fifty percent of traumatic spinal injuries are the result of motor vehicle accidents and another ten percent are the outcome of aquatic accidents. The figures in this category are also increasing yearly in Australia, probably because of better salvaging facilities for the injured and better education of health workers. Non-traumatic spinal injuries are primarily caused by infections and birth defects. The important feature of this examination of causes is that the majority of victims are in the most productive and economically viable period of their lives.

These clients do not fit into the traditional medical model of disease followed by cure, death or disablement. Some differences include three facts, identified by Heidergerkin(1968);

- There is no cure, but death rates have diminished.
- The client is not a passive recipient: maximum success for rehabilitation depends on client initiative.
- The philosophy of rehabilitation is not to focus on pathologic states but on a modification of client attitude to increase functional capacity and performance in the presence of an infrequently modifiable pathologic process.

The Effect of the Disability

The rehabilitation of the spinal injured person, the family and/or their significant others is planned so that residual physical and psychological health can be maintained with an expected outcome that the client will use their life to the fullest potential. One problem with this planning is that it is done in an environment, initially in hospital, where there is an emphasis on the medical model. This results, naturally, in a concentration on the deficits (that is, on protecting and assisting the injury) rather than the residual assets. Maximizing assets occurs once the client has overcome the problems with their deficits. Time is spent initially on overcoming problems with elimination, mobility, self concept and so on, rather than the residual benefits acquired through life experience and education. The client is not allowed to be autonomous, but is instead in a dependent, childlike state, subject to rules and routines over which they have little control. Understandable in the life threatening phase of the injury, but not in the less acute phase, particularly if the staff subscribe to the idea of holistic care.

Rehabilitation involves learning. In order for it to be effective, the client needs to be involved, and since they will be involved in learning through rehabilitation, they are in the ideal position to use the learning skills in distance education. This paper argues that rather than waiting until rehabilitation has been accomplished, the mobilising of cognitive, affective and conative domains should be started in tandem when the client has moved out of the life-threatening phase. Walker (1989:296) makes the point that victims reach a readiness for learning at different stages in their recovery. She gives as an example a client who had been a quadraplegic for ten years, who had many difficulties in adjusting to study, since his self esteem was very low and he lived permanently in a hospital.

Hospital environments do not fit this category. The patient's early reactions of dependency, insecurity and fear may result in childlike behavior. Often health care workers in acute caring roles with maternalistic ideals nurture this childlike behavior, rather than encouraging the client to concentrate on the assets that are left. Every effort must be made to create an environment conducive to learning whereby independence and self-reliance is stimulated.

Grieving will also be a phenomenon that will hamper learning. The intensity of that grieving will be directly related to how much information is given to the client, and close relatives and friends. Because of health care workers' attitudes, the relatives may have a clearer view of the serious nature of the patient's injury, than the patient. Relatives may, as a result, become over protective or too possessive and act as a block to learning. A feature of this mourning is the reality that clients rarely proceed in a straight line towards discharge and resolution. Much more commonly, setbacks in rehabilitation will result in more psychological adjustments, with the client finding that the goals that they have set themselves have been moved or changed. This is when realistic support from family and friends, as well as those assisting with organised learning is vital to avoid the often drastic effects on motivation that may result.

Implementation

To achieve the goals of serving both the individual and society, an educational process must be designed and implemented, which takes cognisance of all factors in the client's environment.

The following matrix gives some indication of the relationship between specific disadvantages and variables that effect appropriate educational experiences. Discussion will be concentrated on those learners with spinal injuries.

Nature of Disadvantage	Educational Implications	Educational Solution
Impaired sight	* Lowered self esteem * Fear of group situations * Instruction with normal text is ineffective	audio-tape, Braille teletutorial voice computers
Impaired hearing	* Lowered self esteem * Lecturers, audiotapes ineffective	Tutorial in print computers
Paraplegia	* Lowered self esteem * Fear of group situations * May require institution security * Lack of mobility * Financial restrictions	Limit physical access Give exemptions for residential schools Deliver course in home environment
Quadraplegia/ Tetraplegia	* Lowered self esteem	Mouth and breath operated computers
	* Fear of group situations	CAL and CML
	* May require institutional security	Flexible courses
	* Needs an assistant	Medical/education training of assistants
	* Multiple hospital readmissions * Financial restrictions	

The Rehabilitation Model of Care

"It is far more expensive to continue handicapping .... than it would be to begin rehabilitating .... Keeping disabled people in dependency is costing us many times more than would helping them to independence." (Bowe, 1983)

Andersen (1971:74) sees rehabilitative nursing as a teaching and learning process. In this context, the learning is about coping with injury and disease. This paper suggests it can be a distance learning process, resulting in the development of a more functional and autonomous member of society.

Distance education has much to offer. It is most efficient when it requires mental rather than physical or social interaction. Since the residual capabilities of quadraplegics are mental rather than physical, they can learn at a distance and gain employment related to that learning, far more effectively than the mentally disadvantaged, who may have considerable cognitive learning problems and will probably be employed in manual tasks requiring considerable motor skill training difficult to achieve using conventional distance education.

Ideas on Androgogy

These ideas emphasise the view that the adult learner is autonomous and self directed, qualities ideal for the distance learner. It should be noted, however, that Brundage and Makeracker (1980) provide evidence that adults under stress do not learn effectively, whilst other writers such as Reisman (1950) hold views contrary to the belief that adults per se are self directed learners. Nevertheless, distance learning is a valuable aid to reducing the childlike dependency.

As has already been discussed, hospital environments are not conducive to learning. Bedbrook (1985:177) describes accommodation for the spinally injured as a continuum, once the client is discharged from the acute care setting.

Residential care	Small community residence with or without attendant	Living at home with attendant care and communuty services	Independent living at home

Distance education techniques encourage a dialogue-in-print and active learning, thus reducing the dependency of the learner on the context of the physical and human environment, and allowing the client to practice autonomous learning that transcends the institutional environment. The reality is that readiness to learn may not occur until the client is moved from the stressful acute care area to one of the options described by Bedbrook. Here, health care professionals can assist the distance learner much more effectively if they have the dual roles of nurse and tutor and a familiarity with the learning process.

Vocational Rehabilitation and Distance Education

People with spinal injuries need to understand the work opportunities available to them in a competitive labor market. Many compromises may need to be made and the client may have to be involved in a complete retraining program. Distance education can offer a wide range of educational opportunities, giving access to employment areas in high demand. Current examples are data entry, processing and analysis. Other areas include financial management and control, some forms of journalism, information systems management, medical technology and even, as Stephen Hawkins has demonstrated, theoretical quantum physics.

By enabling access to such a range of opportunities the problem of people with spinal injuries becoming inactive and divorcing themselves from work and social activities may be minimised. Those clients who see their contribution to the workforce in terms of mental effort appear to have greater potential in using distance education than do those who see their future employment centering around sheltered and industrial workshops.

There are four main problems to do with institutional care that can be addressed by distance education, and they are

- Institutional care segregates the disabled and isolates them from the community - distance education would allow education within the community.
- A removal of freedom of choice - here, distance education can provide greater flexibility of scheduling and choice of content.
- Fostering of dependance - distance education encourages independent learning.
- A propagation of a negative self image - this can be altered with supportive individualised feedback in distance education.

Conclusion

Distance education has a great deal of potential in the rehabilitation through education of people with severe spinal injury and grossly reduced mobility. It de-institutionalises the process of learning, gives the client considerable control of the location and timing of the learning experience and allows for the individualisation of both the product and process of learning.

With these advantages, the potential is clear. However, most distance education thus far in Australia, has failed to address the needs of the handicapped except on a very minor scale. Such neglect is a reflection of the heavy institutionalisation of distance education, with little more than lip service to open education systems which allow greater student access and control. There is also a cost factor involved and as a result, little effort is made to recruit students who would not bring with them abnormal levels of funding, but would require greater attention and therefore incur greater costs in their education.

What is needed is funding to encourage distance education centres to embark on a major campaign of awareness and recruitment. There should also be increased institutional funding to develop a highly supportive system of open learning, which would give occupational mobility to the physically immobile.

In addition, institutional flexibility is necessary as it is obvious that, for disabled students, progression will be constantly interrupted by illness and relying on normal rates of progression would place the spinally injured client at a grave disadvantage.

References

Anderson, B (1971:74) "Rehabilitative Nursing Practice", *Nursing Clinics of North America* 6:

Bedbrook, G.M. (1985) *Lifetime Care of the Paraplegic Patient*, Churchill Livingstone, Melbourne.

Bowe, F., et al., (1983) "Consumer Involvement in Rehabilitation", in *Annual Review of Rehabilitation*: Vol 1, E. Pan, et al. (eds) Springer Publishing Co., New York

Brundage, D.H. & Makeracker, D. (1980) "Adult Learning Principles and their Application to Program Planning", Ontario Institute for Studies in Education, Lippincott, Philadelphia.

Cleary, M. (1988) "Mark's Rehabilitation was a Labor of Love", in *Nursing 88*, March, pp. 58-64.

Heidergerkin, H. (1965) "Teaching and Learning", in *Toronto Schools of Nursing*, Lippincott.Philadelphia.

Office of Technology Assessment Congress of the United States of America (1983) *Technology and Handicapped People*, Springer Publishing Co., New York.

Reisman, D. (1950) *The Lonely Crowd: a Study of Changing American Character*, Yale University Press, New Haven.

Walker, J. (1989) "Mark's Story: A Disabled Student's Case Study in Distance Education", *Distance Education*, 10 (2) 289-297.

ELECTRONIC MAIL EVALUATED - A CASE STUDY

Electronic mail as a technique to help reduce feelings of isolation experienced by external students and as a means of increasing the effectiveness of communication between student/lecturer and student/student has been described by a number of writers (Scriven, B., 1988, Gledhill, V.X. and Dudley, C.P., 1988, Frost, T.R., 1989, Vivian, V., 1986, Kuffner, H., 1984, Atkinson, R., 1988).

Many higher education institutions have trialled electronic mail systems (EMAIL) yet few have persisted. At Charles Sturt University-Riverina EMAIL has been operating within the Graduate Diploma in Computing Applications course for over four years (six student intakes). This paper reports on an evaluation of the use of EMAIL in one of the course's subjects DTA4114: Database Systems during Autumn Semester 1989 and concludes with a set of recommendations for improving its effectiveness and extending the adoption of EMAIL technology to other teaching areas within the University.

This evaluation is a sequel to the descriptive paper that appeared in ASPESA Papers No. 8 (1989) entitled 'Using Computer Based Communications to Reduce the Difficulties of Distance Education'. Readers interested in a detailed explanation of the rationale behind the introduction of EMAIL and how it is used in DTA4114 are referred to this earlier paper.

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Charles Sturt University-Riverina offers a two year, external Post Graduate Diploma in Computer Applications consisting of two subjects each semester for four semesters. The use of electronic communications with minimal residential school attendance requirements is a fundamental basis of the course design. Students are required to attend an initial course based residential school of five days, at which they receive instruction and demonstrations on the use of electronic communications (via Telecom's AUSTPAC service, into which one of the University's VAX computers is connected) as well as an introduction to their first two subjects. The residential school is designed for students with no prior computing experience although increasingly students do have some previous computer use exposure.

As well as instructional content, the residential school gives students the opportunity to meet staff and fellow students. This is significant for future communications, as it is often commented that having previously met your correspondent makes subsequent non face-to-face communications easier.

The format of each of the subjects in the Graduate Diploma is that of a 'traditional' printed mail package, which contains the Subject Outline (objectives, texts, references, assignments, due dates, etc), and the associated Notes and Readings. What is different however, is that all students are **required to log** on to the University's VAX twice a week during semester time to check for Electronic Mail messages and to send their own messages and assignments. In this way, students and staff are potentially only a matter of hours apart, depending on how frequently people log in to the central computer to check for messages.

Apart from the initial course-based residential school the only other planned meeting of the students and staff is the final residential school at the end of the fourth semester, at which the students present and defend their major project - a computerised real life application.

Evaluation Model

In conducting this evaluation it was considered appropriate to investigate all phases of the use EMAIL? Were the procedures used in the transmission of messages and assignments effective? Did the lecturer and students consider the use of EMAIL has been helpful? An evaluation model designed to address such an holistic view of innovation is the CIPP Model. (Stufflebeam, D.L. and Guba, E.G., 1971). CIPP is an acronym for four stages of evaluation, namely context, input, process and product. Since this evaluation is presented using these four stages brief definitions are provided.

Context evaluation involves analysing the significant elements of an educational environment. Under context evaluation one would expect to address such questions as why was the use of EMAIL considered to meet an educational need, did the lecturer and students have the background to participate effectively in EMAIL?

Input evaluation provides information regarding how to employ the resources to achieve the program objectives. Here one might ask whether the University provided the technology to allow the effective use of EMAIL; whether sufficient resources were in place to instruct students on the use of EMAIL during the Residential School.

Process evaluation occurs once the instructional program is operating. Its purpose is to describe procedural events and activities so that any deficits in the implementation can be discerned. Under this heading one considers what problems students and the lecturer experienced in actually using EMAIL.

Product evaluation attempts to measure and interpret the attainments arising from an educational innovation. In this case it is pertinent to ascertain student attitudes to EMAIL after the completion of DTA4114 and any other outcomes. What advantages/disadvantages did the lecturer/students perceive in using EMAIL rather than some other more traditional communication system? Were the objectives effectively accomplished?

Table 1 places the four stages of evaluation that make up the CIPP model into a timeframe.

Context Evaluation	Input Evaluation	Process Evaluation	Product Evaluation
Pre-semester	Pre-semester and at the Residential School prior to commencement of the course	During the semester	After the semester
Pre-February 1989	February 1989	February to July 1989	Post July 1989

Table 1 - Timeframe for the Evaluation of EMAIL

Methodology

Evaluation involves collecting valid data which may be used to make judgements about a program. Such judgements should result in recommendations for improvements.

The data for this evaluation was obtained from three sources; the DTA4114 lecturer, who was involved in many discussions about the use of EMAIL; a student questionnaire completed after the subject had finished and the record of all EMAIL exchanged between the lecturer and the students.

The student questionnaire was forwarded via Electronic Mail (plus a hard copy with a returned assignment through Australia Post) to the 17 students undertaking DTA4114 before the end of the semester. Full responses were received from 13 students - a response rate of 76.5%. Four students declined to reply despite several reminders sent via EMAIL. Students were required to return their questionnaires to the Division of External Studies (not the lecturer) and to remain anonymous. Of the 17 students who attempted DTA4114, 15 achieved a pass or higher. It seems likely, but by no means certain, that the two who failed the subject were non-respondents.

One of the advantages of using EMAIL is that a permanent record of all communications between students and lecturer can be stored in the computer and called up whenever required. Access to such data is invaluable when determining the number, length and frequency of mail messages transmitted during the semester. Analysis also provides an insight into the topics covered and the extent to which two-way communication (question and answer) eventuated.

Context Evaluation

As described earlier, this part of an evaluation seeks to examine the context in which an innovation occurs. In this study the context was a group of 17 students enrolled in DTA4114, their lecturer and the rationale for making EMAIL a compulsory component of the subject.

The 17 students had already successfully completed the same four subjects in the Graduate Diploma in Computer Applications:

DTA4024: Introduction to Information Systems
DTA4034: Information Analysis and Design
DTA4314: Foundations of Programming
DTA4324: Advanced Programming Techniques

It can be safely assumed, therefore, that the students shared a common knowledge base. Furthermore, the entire cohort had attended a residential school twelve months earlier at which they were given approximately six hours practical introduction to the use of EMAIL by the lecturer who was later to be their lecturer for DTA4114. The lecturer is convinced of the necessity for hands on experience at the initial residential school and considers that a reduced effectiveness of EMAIL usage would probably occur without this prior exposure. It is believed that because the students met at the residential school they were more likely to use EMAIL to contact each other later as they progressed through their subjects.

Twelve months elapsed between the February residential school at which students first became conversant with EMAIL and the commencement of DTA4114. The twelve months gap between initial contact with EMAIL and the start of semester was not a problem however. Very few practical difficulties were experienced by the students no doubt partly due to the fact that they had been encouraged to use EMAIL as a voluntary form of communication while studying the earlier subjects in their first two semesters.

The lecturer for DTA4114 first introduced EMAIL as a compulsory component of the external subject in Spring 1988. Prior to this, the lecturer had had extensive experience with EMAIL both within the computing industry since 1973 and as used in both internal teaching (1982 on) and external teaching (1985 on) at Charles Sturt University-Riverina (formerly Riverina-Murray Institute of Higher Education).

Part of the rationale for requiring students enrolled in DTA4114 to communicate by EMAIL and to forward assignments one and four by this mode stemmed from the concern that staff held about the graduate diploma being of a practical orientation. It was argued the best way for students to appreciate the potential for EMAIL was by immersing them in a situation where EMAIL constituted an essential part of the learning process. Apart from ensuring students acquired the practical skills of using electronic mail, it was considered access would reduce the sense of isolation felt by students from University and their colleagues by providing the means for more frequent and effective communication.

To summarise the context, there appears little doubt the reasons for requiring the use of EMAIL in DTA4114 were educationally valid and potentially helpful in the satisfaction of certain needs of external students. The knowledge, commitment and experience of the lecturer was more than adequate while the students had been instructed at the residential school in the use of EMAIL.

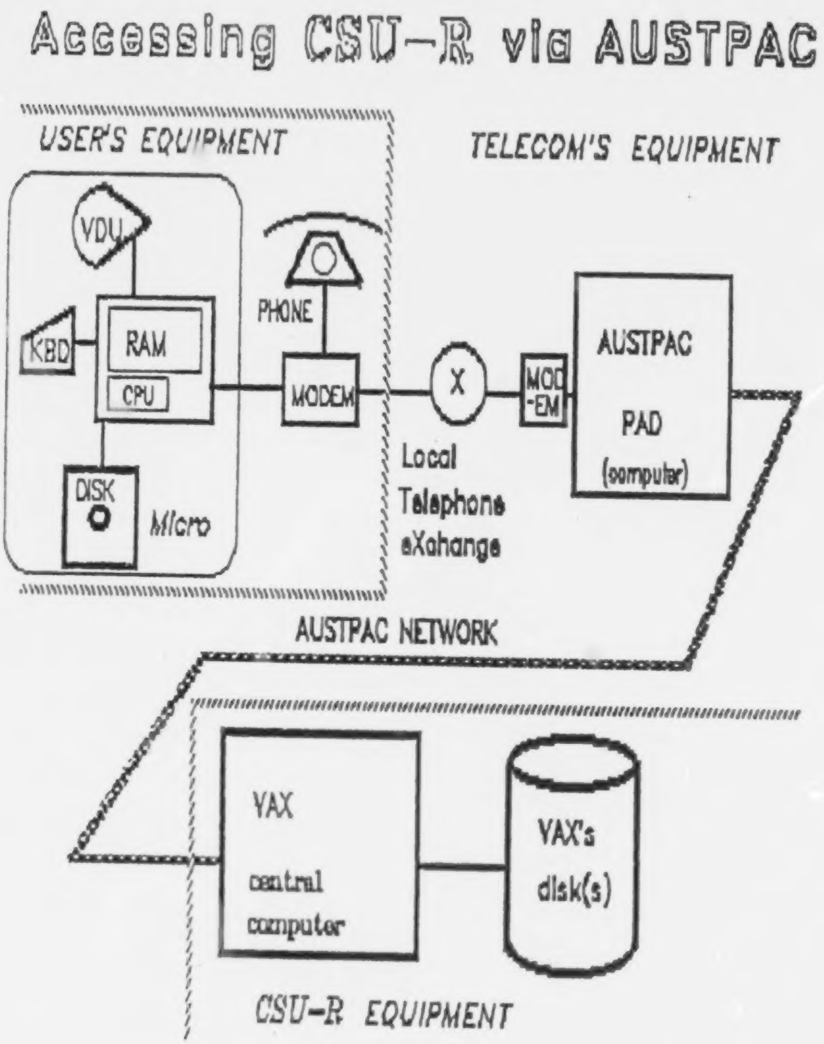
Input Evaluation

Input evaluation seeks to investigate whether the resource inputs were sufficient to allow the innovation to succeed. In this case it is necessary to ask whether the resources provided enabled the achievement of the three objectives for which EMAIL had been introduced, namely:

- to reduce the student sense of isolation,
- to increase the effectiveness of communications,
- to give students the opportunity to demonstrate their practical knowledge of using EMAIL.

For these objectives to be realised it was necessary that the technology be functioning effectively and at an acceptable cost. This part of the evaluation, therefore, examines the EMAIL system itself. Figure 1 shows the equipment components and inter-connections of the system diagrammatically.

FIGURE 1


Accessing CSU-R via AUSTPAC
USER'S EQUIPMENT
TELECOM'S EQUIPMENT
VDU
KBD
RAM
CPU
DISK
Micro
PHONE
MODEM
X
MOD-EM
Local Telephone eXchange
AUSTPAC
PAD
(computer)
AUSTPAC NETWORK
VAX
central computer
VAX's disk(s)
CSU-R EQUIPMENT

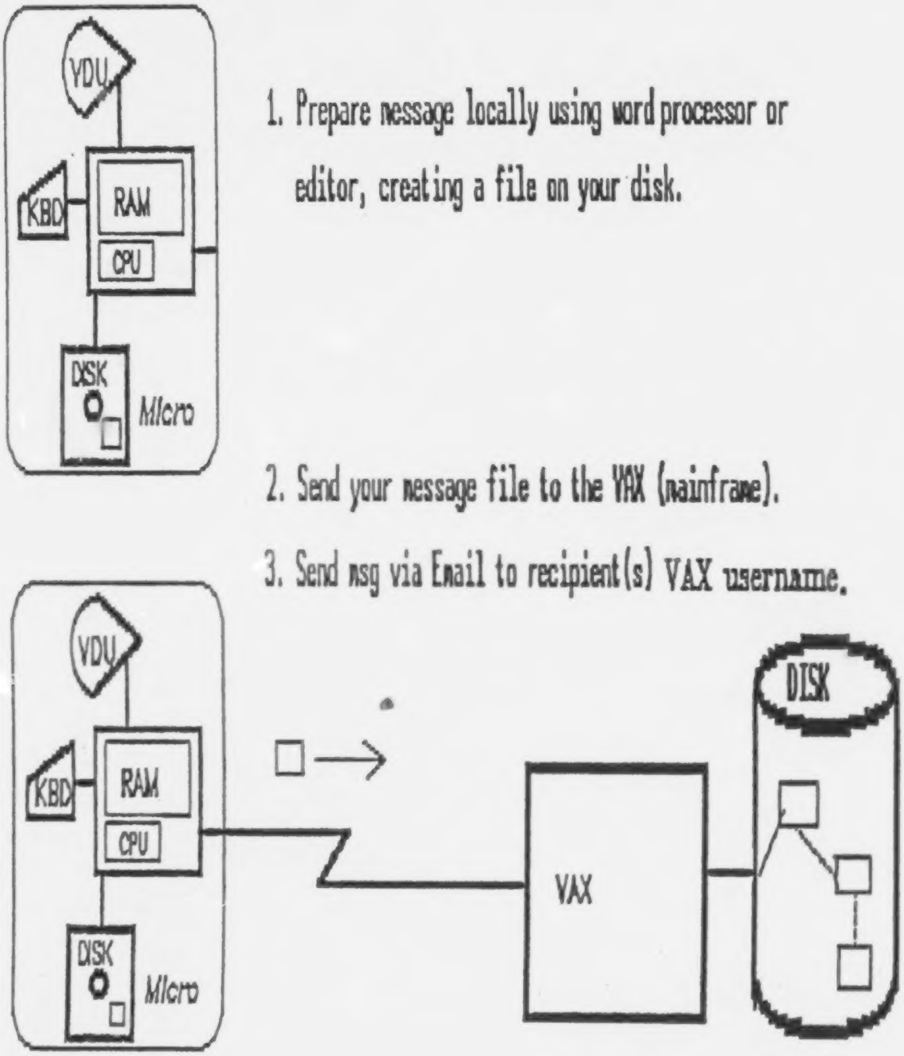
As you can see from Figure 1, the student's microcomputer can be linked to Telecom's Austpac service, which in turn is linked to the University's central VAX computer. Whilst initially appearing quite involved, the connection process is easily learnt, and takes less than 30 seconds to accomplish each time access to the VAX is required.

Students normally prepare their EMAIL message for sending (to the lecturer/ other students) locally on their microcomputer, before connecting to the central VAX computer.

After connection, the EMAIL message is transferred quickly (in seconds/minutes) to the VAX, on which it is sent via the EMAIL facility to the VAX username of the intended recipients, as shown diagramatically in Figure 2.

FIGURE 2

SENDING ELECTRONIC MAIL (EMAIL)



1. Prepare message locally using word processor or editor, creating a file on your disk.

2. Send your message file to the VAX (mainframe).

3. Send msg via Email to recipient(s) VAX username.

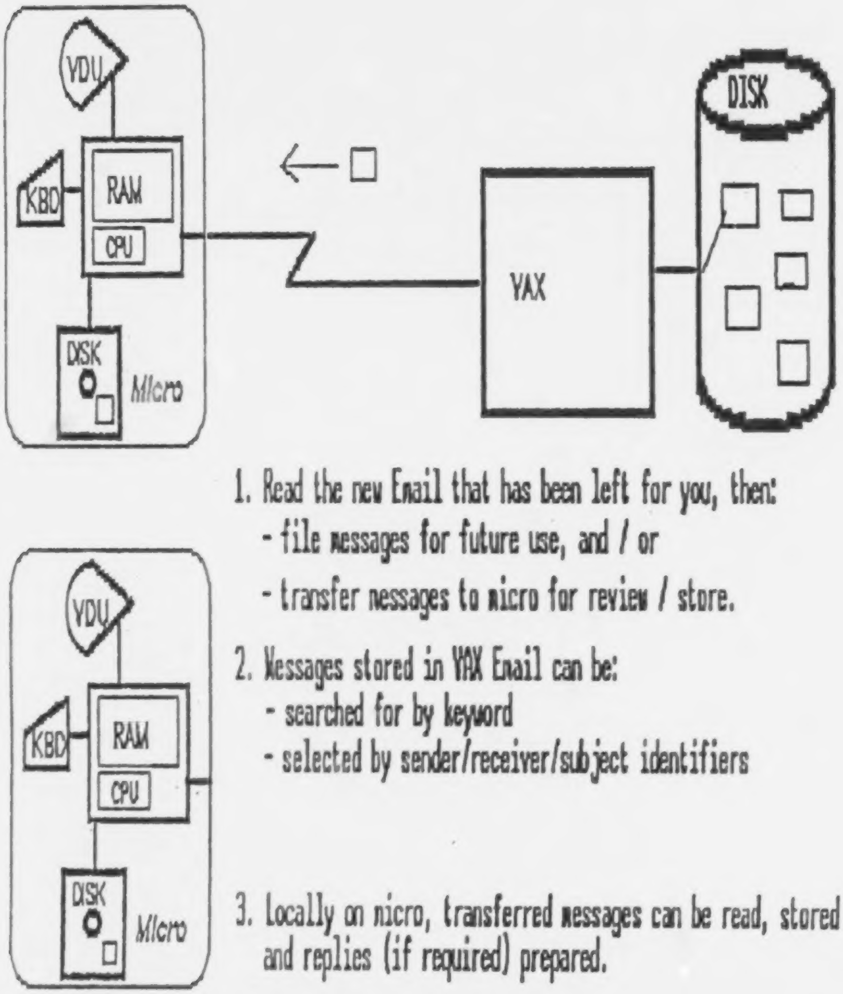
The EMAIL facility stores all messages sent to a particular person on the central VAX to await collection. Each user participating in the EMAIL exchange facility must periodically (suggested daily) access the central VAX to determine whether or not 'new mail' has arrived for them.

As a user logs in to the VAX they are told how many messages await them. Thus if there are none, it takes only one or two minutes to complete the exercise of checking and then logging off (disconnecting from the VAX).

If messages are waiting, they can be read whilst connected to the VAX, and/or transferred to the user's own microcomputer, as shown in Figure 3.

FIGURE 3

RECEIVING ELECTRONIC MAIL (EMAIL)



1. Read the new Email that has been left for you, then:
   - file messages for future use, and / or
   - transfer messages to micro for review / store.
2. Messages stored in VAX Email can be:
   - searched for by keyword
   - selected by sender/receiver/subject identifiers
3. Locally on micro, transferred messages can be read, stored and replies (if required) prepared.

Each student in the Graduate Diploma is required to have their own microcomputer or easy access to a modem and the appropriate software to allow that microcomputer to communicate. No prescription as to manufacturer or model is made, only that it must be able to communicate (via Telecom's AUSTPAC service, or direct STD dial) to the University's VAX central computer.

Students selected a wide range of microcomputers and modems as illustrated below.

Student Number	**Microcomputer**	**Modem**
1	Amiga 1000	Tandy Modem 300 Baud
2	Amstrad 1640 (IBM Comp.)	Avtek Mini Modem II
3	Microbee CPM 128K	Avtek Mini Modem II
4	Ultra XT (IBM Comp.)	Le Modem (internal modem)
5	Toshiba 3100 (IBM Comp.)	Netcomm Portable modem
6	Micropro (IBM Comp.)	Not known
7	8088 Turbo 64OK (IBM Comp.)	Avtek MEGA modem 12
8	Amstrad SD 1512 (IBM Comp.)	Netcomm 3 + 12
9	IBM PC -AT	Bit Blitzer 12E modem
10	Apricot Micro	Sendata modem
11	Apple IIE	Autolie modem
12	Atari 1040	Sendata quad intelligent modem
13	IBM XT Clone	300 Baud Hayes Compatible modem

Table 2 - Microcomputers and modems used by students enrolled in DTA4114, Autumn 1989

Depending on the features and sophistication of the equipment chosen by the student, a typical setup cost of $1000-2000 should be expected, but this can easily be defrayed against the cost of attending several extra residential schools for the course. An added bonus is that students become competent in the use of their microcomputers during the course duration, over and above the mastery of course content.

Only two of the 13 students reported any malfunctioning of the technology; one experienced a damaged monitor, the other, difficulty with the scroll lock system.

There is no reason to believe these problems were anything more than normal wear and tear.

To make EMAIL operative, the University has provided all the necessary central resources for the use of students and staff. Currently the central system is a VAX 8200, which has many local terminals for staff and internal on-campus students, and a connection (at 9600 BPS) to Telecom's AUSTPAC service that can support 15 concurrent users. Additionally, there are three direct dial modems available on the

VAX, enabling students to bypass AUSTPAC should the University's 15 users limit be fully utilised (which is rare) and for local phone area users.

This system appeared to work well although four students reported occasional difficulties. The reported problems were followed up with the result that the concerns were identified as being either operator error, ignorance on the part of students or technical problems with the VAX8200. None of the reported difficulties could be attributed to Telecom's AUSTPAC service.

Each student was allocated a unique Username on the VAX, including an amount of disk storage space. Each username was so established that privacy was enforced, in that no other user (excepting the system manager) could access a student's files. Nor could a student relax this constraint. Thus each student could confidently work independently on the central computer when necessary. The standard VAX electronic mail facility was used between students and lecturers, and between students.

To simplify the student's method of access, and to remove the need to become a Telecom AUSTPAC account holder, with associated setup and maintenance charges, the University's VAX accepts reverse charge communications from the microcomputers of VALID students. To achieve this control, special access and accounting software has been developed, to check (for each AUSTPAC user logging in) that the user is acceptable and that they have sufficient communications CREDIT (in minutes) available. If the user is not valid, or does not have any time credit remaining, they are suitably informed and automatically disconnected.

As the students use the central computer via AUSTPAC, their usage is recorded and debited against the amount of communication time credit remaining. AUSTPAC charges for all students are billed to the University, which in turn recovers the cost from the users (currently at a recovery rate of $8 per hour, which compares favourably with peak time STD of around $25 per hour from Sydney, for example).

The students were provided with an amount of 'free' AUSTPAC usage time for each subject, with the amount varying between five and ten hours per subject (larger amounts for earlier subjects). If a student required additional access time, they sent a cheque for the appropriate amount, which was then credited to their AUSTPAC use account.

In some subjects, students needed to use more than their 'free' allocation (the amount varying with the ability of the student and the features of their microcomputer), but again this additional cost has to be weighed against the reduced need for residential schools, and communication responsiveness with lecturers.

Very few complaints have been received from students regarding this method of costing. It is a particularly equitable system since costs are not distance related. A student using EMAIL in Darwin pays the same amount as a student in Canberra. Additional costs will be incurred, however, if students reside overseas.

The DTA4114 lecturer has access to EMAIL via facilities at the workplace (provided by the University) and from home (provided by the lecturer). In his or her university office, the lecturer has an IBM compatible microcomputer (mono screen, 30MB hard disk) but must share five access lines to the central VAX computer with about 12 other users. No modem is necessary as a 'direct' connection between the computers is effected.

At home, the lecturer has an IBM compatible microcomputer (CGA colour, 20MB hard disk) with an inbuilt Hayes compatible modem that operates up to 2400 baud). A local phone call cost is required for each session on the central computer. Having access from home allows, at minimum inconvenience, the lecturer to send/respond to EMAIL during evening and weekend periods which is very helpful for external students. On both computers the VT Kermit communications software package is used.

To conclude the Input evaluation section it is necessary to return to the three objectives for EMAIL listed at the start of this section. Undoubtedly the equipment was sound and the costs not considered too high since very few concerns were expressed by the lecturer and/or students with regard to the functioning of the technology. Students were provided with a valuable opportunity to demonstrate their practical knowledge and understanding of EMAIL. The extent to which communication effectiveness and the reduction of a sense of isolation were realised will need to be addressed in greater detail however in the next section - process evaluation.

Process Evaluation

This component of the CIPP Evaluation model examines what actually happened during the semester itself. How much and what kind of use was made of EMAIL? What advantages/disadvantages did the lecturer and the students report? How can the EMAIL system be improved?

Items 5, 6 and 7 of the student questionnaire were designed to determine frequency of student use of EMAIL in the subject for the semester. The results are shown in table 3 below:

	Item 5		Item 6		Item 7	
No. of Messages	**Students**	**Messages Sent**	**Students**	**Messages Sent**	**Students**	**Messages Sent**
<5	2	4	8	16	8	16
6-10	7	56	2	16	4	31
11-15	2	26	2	26	1	13
16-20	0	0	1	18	0	0
>20	2	42	0	0	0	0
Totals	13	128	13	76	13	61

5 How many times did you use EMAIL to send messages to your DTA4114 lecturer this semester?

6 How many times did you use EMAIL to send messages to other DTA4114 students?
(i.e. you initiated the exchange)

7 How many times did you respond to an EMAIL message initiated by another DTA4114 student?

Table 3 - Number of EMAIL messages sent by thirteen DTA4114 students in one semester

With the data in columns 5, 6 and 7 it is possible to roughly estimate the total number of EMAIL messages sent by students by multiplying the number of students in each category by the mid-point of the range. Using this method the 13 students sent approximately 265 EMAIL messages, an average of 20 messages per student per semester.

Anyone involved in distance education will know that this is an extraordinarily high level of communication rarely, if ever, achieved using more conventional forms of communication such as telephone, Australia Post or facsimile. If education is, inter alia, about communicating then these statistics are most heartening.

Reasons for student communications were sought in items 8 and 9. The findings are presented in table 4. Overall four matters interested the students; course content, assessment, how to use EMAIL and 'social and general matters'. The last is imprecise but possibly reflects the need of external students to seek support from colleagues. Nine of the 13 participants initiated conversation in this area.

Topics discussed	No. of students initiating discussion
Contents of Subject Outline	2
Contents of Notes	2
Contents of Readings	1
Contents of Database Example Project Book	1
Contents of Textbook	1
Assessment requirements	7
Assessment results	3
Data communications usage	3
Facilities (AUSTPAC/VAX)	2
Social and general matters	9
Did not initiate any discussions	4

Table 4 - Topics of discussion initiated by thirteen students enrolled in DTA4114

Another interesting observation to emerge from table 4 is that four of the 13 students chose not to initiate any conversations at all using EMAIL. In fact five students claimed no students initiated discussions with them which indicates a group of 8 students must have used EMAIL extensively whereas a smaller group of 4 or 5 made minimal use of the facility. It would appear that there were two distinct groups present - those who relished the opportunities of increased communication and those who were unenthused. This tentative finding begs further investigation.

So far no mention has been made of the lecturer's use of EMAIL. We know from table 3, that according to the perceptions of the 13 students who returned their questionnaires, an estimated total of 128 messages were sent to the lecturer.

However, a double check of the number of messages received by the lecturer and recorded on his computer indicates students **underestimated** the number of messages they sent. Of the 17 students enrolled we have no way of telling which 13 responded to the questionnaire, so it is not possible to compare individual perceptions of the number of messages sent with the data actually recorded on the computer.

Details of messages sent to the lecturer are shown below.

Student	Data from Computer (17 students)		Data from Questionnaire (13 students)	
1	29			
2	24	High Users		
3	23			
4	20			
5	17			
6	15			
7	11			
8	10			
9	9	Moderate users	Refer to Table 3	
10	9			
11	9			
12	9			
13	8			
14	5			
15	4			
16	4	Low Users		
17	2			
Total messages		208	Total messages	128
Average per student		12.2	Average per student	9.8

Table 5 - Messages sent by students to their lecturer.
A comparison of questionnaire data with computer data.

Again it is interesting to note the marked difference in use of this facility, although it is not possible to do more than hypothesise the reasons for such variance. Four students sent 20 or more messages whereas another group of four used EMAIL five or fewer times.

Using the computer, it was easy to examine the content of all the EMAIL messages forwarded to students from the lecturer. For this group of 17 students a total of 292 messages were sent - an average of 17.2 messages per student. The messages have been classified under six headings. Headings 1 and 2 were general messages broadcast to the whole group whereas headings 3-6 were individual. The six classifications and their frequency of use are shown in table 6.

Classification	No. of messages
1. General information and encouragement notices sent to whole cohort	(20 x 17)
2. General assignment feedback notices sent to whole cohort	(5 x 17)
3. Encouragement notices sent to individuals	5
4. Assignment feedback notices sent to individuals	33
5. Administration type notices about subjects/courses to individuals	26
6. Individual responses to student questions	203
Total messages sent by lecturer	292
Total messages received by student cohort*	692
* One general information or feedback notice sent to the whole cohort multiplied by number of students in the cohort (i.e. 17)	

Table 6 - Analysis of EMAIL messages sent by lecturer

Tables 5 and 6 provide compelling evidence of the desire of students in this subject to communicate with the lecturer. That so much communication occurred must reflect the user-friendliness of EMAIL. It seems extremely unlikely that the subject would have evoked so much communication had only the normal traditional methods been available. The question this result raises is the extent to which external students would communicate with their lecturers had they access to EMAIL in other subjects? The authors suggest that using only the limited communication channels presently available is a deterrent to study, motivation and success. EMAIL is the communication system most likely to unlock the plethora of questions and queries external students would wish to ask if only the means was at their disposal.

Questionnaire items were also included that sought to ascertain whether the use of EMAIL in any way influenced the teaching-learning process. Did the ease of communication effect student study habits? Did ready access to EMAIL impact on the way the lecturer prepared and delivered the instructional materials? Did the electronic receipt of 'paperless' assignments change the way the lecturer assessed the students? In other words, was the use of this technology influencing the educational process itself and if so, how and to what extent? Apart from student responses to the questionnaire it was also possible to interview the lecturer to seek his perceptions.

Item 19 asked, "Has the use of EMAIL changed the way you go about approaching your study? Explain". Eleven of the thirteen students replied in the affirmative while two did not believe their approach to study had been influenced. The changes attributed to the use of EMAIL varied (Table 7).

How approach to study was changed	No. of students
Can leave assignment to the last minute and be sure it will arrive on time.	4
EMAIL forced me to learn and use new skills (word processing and phrasing my questions better)	3
Easier access to lecturer meant more interaction and greater help	2
Assignment returned so quickly I could use it in preparing my next assignment	1
PC at work is superior to mine so I now study at work mostly	1
EMAIL less busy after 7.00 pm so I usually work after 7.00 pm	1
EMAIL has forced me to plan my use of time better	1

Table 7 - Changes to study approach attributed to EMAIL

Table 7 is self-explanatory. It is interesting to note that four of the students relished the extra time available for assignment submission and the reliability of the method of submission. Three acknowledged they had been forced to learn new skills as a result of using EMAIL which of course was a stated aim for this subject. Perhaps surprisingly, only two students mentioned easier access to the lecturer as being a means whereby their approach to study had changed. On the whole it is fair to say that EMAIL did influence study habits in that students enjoyed faster and easier communication with their lecturer. Valuable as all this is, EMAIL really is only a mechanism for greater communication with perhaps the spin-off that improved communication enhances the level of students' motivation. No students reported going about the actual learning process itself differently.

Item 20 asked students whether the use of EMAIL changed the way the lecturer prepared the instructional material. The purpose for asking this reflected the concern expressed by some educationalists that such an easy and rapid communication system might result in an over-reliance on the communication technology at the expense of the more conventional written materials normally supplied to students studying at a distance. The lecturer assures that this was not the case. The DTA4114 subject materials continue to be comprehensive and consist of:

• Subject Outline	(19 pages)
• Notes	(105 pages)
• Example Database Project	(115 pages)
• Datatrieve Language Handbook	(188 pages)
Total	(427 pages)

The lecturer stressed the importance of retaining the print medium since he believed students still preferred to study from books. Books, he claimed, are more transportable, easier to follow, available for students to scribble comments in and a valuable means of revision and later reference. There is also a sense of ownership in having a full set of instructional materials. However, it was still felt necessary to ask students their opinions.

Five students felt the use of EMAIL had effected the way the lecturer had prepared his materials, five said 'no', two 'did not know' and one did not respond. When asked to elaborate, the only students who chose to do so were the five who had replied in the affirmative. Their answers are listed below:

- Depends on the lecturer. Allows greater interaction between lecturer and student - this could be reflected in the materials.

- The medium is different, therefore the presentation is modified by the lecturer.

- Lecturer can rectify any problems in material very quickly/easily.

- Some materials are prepared specifically to be sent EMAIL,
  e.g. a sample database design

- Lecturer may not put some things in print if he can use EMAIL.

When confronted with these responses the lecturer admitted there was some truth in the students' comments but added that these perceptions may also have been developed while studying earlier subjects in the course. Whereas it was agreed that the presentation of instructional materials was susceptible to change by using EMAIL it was also agreed that full and proper use of the print medium was as essential as ever. There was no indication that DTA4114 print materials were in any way inferior or less comprehensive than would be expected in a subject not using EMAIL. The use of EMAIL should not be perceived as an excuse for poor quality print materials. This was not the case in DTA4114.

Students were also asked whether they thought the use of EMAIL changed the way the lecturer assessed students (item 21). Responses were seven 'no', five 'yes' and one 'did not know'. One student, who responded in the negative, claimed the medium should not influence assessment in any way, but four of the five 'Yes' students had different views. Two of these students felt that EMAIL assessment was helpful because return rates were so much faster. One student commented that the use of EMAIL probably encouraged greater use of automatic marking systems. This could be debated at length and is not an argument peculiar to the use of EMAIL. Suffice it to say, that in DTA4114 proper regard is given to the most suitable type and form of assessment. Of the four assignments students must complete in DTA4114 two are submitted electronically.

The only student to express a dislike for the 'paperless' assignment was one concerned about the presentation of work. This student complained the formatting limitations applied by the lecturer to simplify the 'on screen' marking process did not allow for individual expression in presentation. This is an interesting point since all students, like it or not, must use the format provided. In this student's case he or she resented the loss of individual expression because of the way the technology was being used. It is of course a moot point whether marks should be won or lost because of presentation. Some lecturers assign marks for presentation and tell their students this while others claim that it is the content only that counts. It is generally accepted, that whether marks are directly awarded for presentation or not, lecturer attitude to a well presented piece of work is more positive and that well presented work is likely to score higher than the same material poorly presented. (Bate, D and Sharpe, P., 1983; Clanchy, J. and Ballard, B, 1981; Strunk, W. and White, E.B., 1979). This student obviously felt the opportunity to shine in presentation has been denied and that this was unfair. Poor presenters, on the other hand, would surely welcome the levelling effect the paperless assignment provides.

To conclude this section the main findings of the process evaluation are listed below:

- Two distinct groups of students were recognised. A large group that used EMAIL extensively to initiate communications with the lecturer and fellow students and a small group that only used EMAIL when required.

- The lecturer also used EMAIL extensively in sending individual and group messages to students.

- The use of EMAIL was shown to have some effect on the study habits of students.
- Instructional materials (print based) may be susceptible to modification if accompanied by EMAIL.
- Most students felt EMAIL did not influence the way the lecturer assessed. The few who believed the lecturer was influenced could not agree whether the influence was a good thing or not.

Product Evaluation

Product evaluation focuses on outcomes. At the completion of DTA4114 were the educational objectives of using EMAIL achieved? Were the students and lecturer satisfied? What attitudes had changed? What were the advantages and disadvantages of using EMAIL? Heavy reliance for answers to such questions has been placed on student responses to the questionnaire.

Item 10 asked what the advantages/disadvantages would be of studying DTA4114 if EMAIL had not been available. Apart from the one student who had earlier bemoaned the formatting limitations, all students believed inaccessibility to EMAIL to be disadvantageous. The disadvantages are listed in table 8 below.

- Poor access to lecturer
- Slower response and feedback from lecturer
- Unable to work on assignment until actual submission time
- No certainty assignments arrive safely and on time
- Unable to communicate so readily with other students

Disadvantages of no EMAIL	No. of students
• Poor access to lecturer	9
• Slower response and feedback from lecturer	5
• Unable to work on assignment until actual submission time	2
• No certainty assignments arrive safely and on time	2
• Unable to communicate so readily with other students	1

Table 8 - Disadvantages for students in not having EMAIL for DTA4114

Of particular interest in table 8 is the emphasis given to the value of student-lecturer dialogue (14 statements) in comparison to student-student dialogue (one statement). EMAIL, not unexpectedly was regarded as being of great communication value.

In reply to the question, "Would you prefer, in this Graduate Diploma Course, greater staff use of EMAIL in other subjects?" the score was 'Yes'-9 and 'No'-4. By cross-checking, it was found the affirmative and negative responses given to this question correlated closely with the large group identified earlier that made extensive use of EMAIL to initiate contacts and the smaller group that declined to do so unless unable to avoid such contact. This is further evidence of the existence of two distinct types of users of EMAIL in this particular cohort.

Of the four students who had responded in the negative, three felt use of EMAIL in other subjects was already adequate. The fourth, who professed to having trouble familiarising with EMAIL, preferred to remain with hard copy assignments since these felt so much more 'secure'.

The nine students supporting greater use of EMAIL in other subjects proffered the following reasons:

- The better contact leads to enhanced understanding between students and the lecturer (6 students)
- Communication is faster (l student)
- Communication is safer (l student)
- Lecturer can respond to a single inquiry from a student by sending the answer to the whole group (l student)

Overall, the majority of students would appreciate more comprehensive use of EMAIL in other Graduate Diploma subjects.

When asked whether they preferred to send assignments EMAIL rather than by postage or some other means, nine students said 'Yes', three 'No' and one was not sure. The undecided student simply stated that some assignments were not suitable for transmission by EMAIL. Two students who responded negatively felt EMAIL was unsuitable for longer assignments but did not say why they felt this. On the affirmative side six students quoted speed of transmission, four that they had complete confidence in safe arrival, two that they relished the extra time available and one that the experience and control was an asset.

It is possible to hypothesise that the two students who disliked the prospect of sending long assignments by EMAIL had poorly developed keyboard skills. It is easy to assume that everybody has highly developed keyboard skills and to forget the long and frustrating grind word processing presents to such students. For such students hand writing is still the preferable way of presentation, Short of insisting all students pass a typing test, perhaps they should be given the option to submit long assignments in the manner they prefer.

Items 13-15 sought opinions as to whether students considered the speed, quantity and quality of feedback by EMAIL was better, the same or worse than that received by more conventional methods. The findings are presented as table 9.

	Speed	Quantity	Quality	Total
Better	13	7	7	27
The same	0	5	5	10
Worse	0	1	1	2
Total	13	13	13	39

Table 9 - Speed, quantity and quality of EMAIL feedback in comparison to conventional feedback

These results are compelling. Every student attested to the better return rate and all but one also felt the quantity and quality of comments was equal to or better than that received by conventional means. During a previous semester a marker who lived 40 km away was employed but this created no delays or problems.

Each time an assignment was received by the lecturer an immediate acknowledgement was sent. This involved a short stored message such as 'Your assignment 1 has been received'. This was sent to the student by return (REPLY) EMAIL allowing the student to know that all was well. The assignment was extracted from the EMAIL system and placed securely in a file in a protected (sub) directory of the lecture is username. The above two actions each required one short command. Each student's assignment was placed into a file which contained in the filename the (VAX) username of the originating student for future return purposes. Periodically, the marker would sign onto the VAX and simply transfer all new assignments onto the hard disk of his micro. Then using his WP facilities, he would mark each assignment.

The marking process paralleled what would happen with the traditional pen on paper process. Function keys in the WP package were set to generate symbols such as ticks, crosses and question marks, which were quickly entered, where appropriate, into the student's submission. Where necessary, previously prepared 'standard comments' were inserted always being prefixed by a ## (2 of #) symbol, so that these comments could easily be found by the student using the search facility of their own WP once the marked assignment had been returned.

The marked assignments were then uploaded to the VAX ready for return to the students. The lecturer reviewed the assignments and formulated overall general comments for the class. The total mark for each student was extracted, and then sorted into descending order so as to provide each student with a clear indication of the overall result achieved by all the students. In this way students were able to compare their mark with the remainder of the cohort.

The general comments and marks distribution were sent to all students in the class via EMAIL Broadcast after which each student was sent back (via EMAIL again) their individual assignment, as marked.

The total turnaround time for the first assignment, from the date the assignment was due to the time it was returned by EMAIL and thus available for retrieval by the student, was six calendar days, which compares more than reasonably with the best to be expected by normal hard copy and postal procedures.

Advantages of the Approach

- Unless the students took a draft/final hard copy, no printing or paper consumption was necessary.

- Students were able to submit electronically right up to the due date deadline, thus allowing them several extra days to complete the assignment, since postal delay was not a concern.

- The potential inequity of different postal lead times between students in different locations was eliminated.

- Students were able to receive immediate (as at the next time they logged into the VAX) confirmation that their assignment had been received.

- An electronic copy of a student's assignment was held in their computer system, the lecturer's VAX files, and the marker's micro files. Consequently the assignment could not be lost in transit.

- The lecturer could easily maintain records and control over the entire procedure including when assignments arrived, which assignments were 'out' being marked, which assignments were available for return, and marks achieved by the students.

The EMAIL system can be seen therefore to have a number of additional benefits apart from improved speed, quantity and quality of feedback.

Items 16-18 were designed to ascertain from students what improvements they would like to see in the application of EMAIL for the transfer of messages (item 16), the submission of assignments (item 17) and provision of feedback (item 18). Surprisingly few recommendations were forthcoming which must reflect the high level of satisfaction already felt.

With regard to the sending of messages, nine students either offered no suggestions for improvements or expressed complete satisfaction with the system as it currently operates. Four ideas were forthcoming from the remainder. One requested more instruction on how to send EMAIL messages, a second berated fellow students for not responding more quickly to messages. The former clearly needed some remediation initially to help him/her over difficulties. Little can be done to assist the latter except to again urge (by EMAIL?) students to check for and respond to messages as frequently as possible. A third student complained of delays of up to ten minutes in receiving mail messages. This was apparently due to the VAX at that time being unable to cope with the overall load and has since been rectified.

The fourth student suggested the addition of interactive chat mode whereby a conversation could be simulated between two stations. The DTA4114 lecturer when asked about this said that this possibility had been deliberately discouraged for several reasons.

- extra facilities are required on the microcomputers,
- it consumes more resources,
- this system cannot maintain records,
- not as 'personal' as the telephone,
- is intrusive in the same way as the telephone.

Nine of the thirteen students were perfectly happy with the current use of EMAIL for the forwarding of assignments. Two other students liked it so much they requested all assignments be submitted via EMAIL. The remaining two students were concerned about the slow rate of file transmission. One had purchased a modem capable of transmitting only 300 baud per second (bits per second). This was the student's choice - the limitations in speed of transfer had been explained to the students at the residential school 12 months earlier. 2400 baud has recently become available and new students are now being advised of this enhanced capability. 1200 baud has been available since 1985.

Twelve of the thirteen students were satisfied with assignment feedback and offered no suggestions for improvement. The thirteenth expressed concern that in providing feedback it was a distressing experience for students with poor marks to have their marks made public to all other students. The lecturer explained, however, that this did not happen if students choose not to make their student numbers known to others. Students were warned of this at residential school but all agreed to exchange student numbers. In the interests of confidentiality student numbers need not be listed against assignment scores in future.

The questionnaire concluded with an 'open basket' item seeking any comments respondents felt had not been adequately covered in previous questions. Two pertinent remarks were offered apart from several highly complimentary comments about the lecturer and the use of EMAIL in the subject. The significance of so many compliments should not be dismissed lightly, reflecting as it does a group of satisfied customers. Both remarks requested extensions of EMAIL to include electronic Newsletters and items such as 'textbooks for sale' and the use of a bulletin board. The introduction of a bulletin board for all students studying the Graduate Diploma in Computer Applications is currently being implemented.

By way of summary of the product evaluation it can be said that, in general, both the lecturer and students were well pleased with the use of EMAIL in DTA4114. There was strong support for its continued use as a communication channel and as a method for the forwarding and return of assignments. The majority of students was in favour of extending EMAIL more comprehensively into other subjects in the program. A few suggestions for improving the use of EMAIL were forthcoming, the more practical of which have already been instigated.

Discussion

The CIPP evaluation model has been applied to examine the use of EMAIL for DTA4114 during Autumn Semester 1989. Data has been collected through a student questionnaire, lecturer interviews and information stored on the VAX and analysed using the four facets of the CIPP model namely context, input, process and product. There is no doubt that the three objectives described earlier justifying the introduction of EMAIL have been achieved. Students have had the opportunity to demonstrate their practical knowledge of EMAIL, communication between all parties has been far greater than when EMAIL is unavailable. The paperless assignment has been welcomed as being faster and safer and providing feedback to students which exceeds that of conventional feedback methods in speed, quantity and quality. Finally, the increased level of communication must be conceded as having reduced the degree of isolation experienced by students. It must be concluded that the use of EMAIL in this subject has been highly successful.

Recommendations

"Evaluation is not to provide but to improve" (Popham, W.J., 1975:78). In this final section attention will be given to the listing of recommendations for the further improvement of EMAIL as used in DTA4114 followed by some more general recommendations for the introduction of EMAIL into other subjects and courses offered by Charles Sturt University.

Recommendations arising from context evaluation

1. None. The context is well suited for EMAIL procedures.

Recommendations arising from input evaluation

1. Attention should be given to the most cost effective method for overseas students to link into the Telecom AUSTPAC system.

Recommendations arising from process evaluation

1. Further work be carried out to ascertain why a small group of four or five students did not use EMAIL for student-student contact.
2. Consideration be given to increasing the number of assignments submitted and returned electronically.
3. The system of using pre-prepared feedback comments be further refined and extended.
4. Care should be taken not to demand too many long assignments be presented electronically. This can be disadvantageous to students without well developed keyboard skills.

Recommendations arising from product evaluation

1. Consideration be given to increasing the use of EMAIL in other subjects offered in the Graduate Diploma in Computer Applications. It is only through greater practice with EMAIL that the small and less enthusiastic group of students (thought to exist in every cohort at present) will become more comfortable EMAIL practitioners.

2. Particular care be taken to inform students during the residential school of the threat to their confidentiality if they make known their student number to other students.

3. Consideration be given to the setting up of a bulletin board for all students enrolled in the graduate diploma.

Recommended conditions for the introduction of EMAIL into other CSU Programs (i.e. non-computer subjects)

The number of external students who now have access to a personal computer is estimated to be around 70-80%. Those with a modem also may number only 5-10% (although typically modem costs of $100 to $400 now apply). Students may not take kindly to a lecturer who insists that students must use EMAIL unless they are studying a course that is about computing per se. However, if the following conditions are present, it would seem fair and feasible for subjects outside the area of computing to also expect students to equip themselves with the technology to partake in EMAIL.

Conditions

1. That the lecturer is totally committed to EMAIL and has a full understanding and willingness to make use of its potential. This means the lecturer must use EMAIL efficiently and effectively, checking messages in and responding daily as well as instigating the submission and return of one or more assignments each semester using EMAIL.

2. That all students be thoroughly trained in the use of EMAIL preferably at a residential school prior to the commencement of the semester during which they will use EMAIL.

3. That the print materials normally supplied to external students not be compromised because of EMAIL.

In the Future?

Although the survey and evaluation covered a relatively small cohort of students, this significant support for the use of EMAIL in Distance Education is very encouraging, and strongly suggests that further (and wider) use of the approach be undertaken.

References

Atkinson, R. (1988). *Low Cost Electronic Mail;* A report funded under the evaluation and investigations program of the Commonwealth Tertiary Education Commission, Perth, Murdoch University.

Bate, D. and Sharpe, P. (1983) *Essay Method and English Expression.* 2nd edition, Sydney, Harcourt Brace Jovanovich.

Clanchy, J. and Ballard, B. (1981) *Essay Writing for Students.* Melbourne, Longman.

Frost, T.R. (1989) 'Using computer based communications to reduce the difficulties of distance education', *ASPESA Papers No. 8.*

Gledhill, V.X. and Dudley, C.P. (1988) 'Electronic tutorial system for distance education' in Daniel, J.S. and Sewart, D. *Developing Distance Education; Papers of 14th World Conference,* ICDE, Oslo.

Kuffner, H. (1984) 'Computer-assisted applications in distance teaching and evaluation', *Distance Education,* Vol. 5, No. 1.

Popham, W.J. (1975) *Educational Evaluation,* Englewood Cliffs, Prentice Hall.

Scriven, B. (1988) 'The use of electronic mail in distance education' in Daniel, J.S. and Sewart, D. *Developing Distance Education; Papers of 14th World Conference,* ICDE, Oslo.

Strunk, W. and White, E.B. (1979) *The Elements of Style.* 3rd edition, New York, Macmillan.

Stufflebeam, D.L. and Guba, E.G. (1971) *Educational Evaluation and Decision Making.* Itasca, F.E. Peacock.

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EDITORIAL

This issue of *ASPESA Papers* covers a great deal of ground in a relatively slim volume.

To begin, Paul Finnane from Adelaide looks at the way in which services to and administration for students in a multi-campus institution may be brought together.

Ann Henderson from Sydney then presents her report as recipient of the ASPESA grant for attendance at the 15th International Conference on Distance Education in Caracas, Venezuela.

John Mitchell from Adelaide then provides a brief report on South Australian TAFE's Videoconferencing Project. This paper is being presented in *ASPESA Papers* at the same time as it is appearing in the *Australian Teleconferencing Directory, 1991* as it was felt that a wider exposure to the paper would be of interest to the ASPESA community.

Gavin Moodie from Melbourne then presents a short, pithy critique of the essential nature of distance education, focusing particularly on the need to service the needs of regional populations.

Jennifer Short from Bathurst looks at the provision of distance education for health service managers in Australia.

Finally, Michael Campion from Perth examines access, equity and participation questions in relation to efficiency and effectiveness in distance education. This paper was originally presented at the ASPESA Forum in Armidale in 1987.

John Hardie

ONE-STOP SHOP STUDENT ADMINISTRATION AND SERVICES FOR EXTERNAL STUDENTS IN A MULTI-CAMPUS INSTITUTION

By Paul Finnane
Co-ordinator: Teaching and Student Services
Distance Education Centre
South Australian College of Advanced Education

With the advent of Distance Education Centres (DECs), and the intention that their services be available across existing state and regional boundaries to any client institutions wishing to offer courses and programs externally, there are potential problems for student administration and services for external students.

Paul Finnane describes the operation of a **one-stop shop** approach to student administration and services within the External Studies Unit of the South Australian College of Advanced Education (SACAE) and the difficulties confronting such an approach in a multi-campus institution. It is suggested that these difficulties will be exacerbated after the proposed DEC begins operations, and that services will suffer because administrative arrangements will be reduced as a result of DEC economics.

SACAE

The South Australian College of Advanced Education (SACAE) was formed in 1982, the outcome of joining together four colleges of advanced education in the Adelaide metropolitan area. These were the Adelaide College of the Arts and Education (ACA&E) (itself a recent (1979) amalgamation of the Adelaide and Torrens Colleges of Advanced Education) Hartley College (an amalgamation of Kingston and Murray Park CAEs) Sturt CAE, and Salisbury CAE. The constituent Colleges were situated on five campuses within metropolitan Adelaide and, following the amalgamation, faculties already established in ACA&E were established on the other campuses.

The central administration of the multi-campus institution was based on the city campus of the College. All the teaching departments were located on that campus. The faculties had very little real autonomy. Changes that faculties could institute within courses they offered, for example, were limited to minor modifications of courses and/or units. Most significantly, student administration was highly centralised in the Registry, which was represented on campuses by Academic Officers and Students Records staff.

In 1985, as a result of a review of the College, it was decided to move to a decentralised model, with as much devolution to campuses as possible. Faculties were phased out and campuses and college-wide administrative units such as the External Studies Unit became cost centres, with responsibility for managing their own budgets. Campuses were to take more responsibility for courses and academic administration.

Campus administrations were headed by a Dean, and Campus Secretaries were functionally responsible for the running of the campuses. In the academic aspects of their duties they were assisted by the Academic Officers and Student Records Officers previously attached directly to the Registry.

ASIS

Academic and student administration information and data were transferred to a computerised operation, called ASIS (Academic and Student Information System) in which all registrations, enrolments, amendments and other administrative records were entered. Actual entry of essential registration and enrolment data for students, and course and unit data, was reserved to the Registry and the Student Records Officers.

External Studies

Pre-amalgamation, External Studies was conducted predominantly in ACA&E and Hartley CAE. It was of course, integrated with the academic delivery of courses on the campuses, and its function was quite limited. There was little development of academic staff as external teachers, and it would be fair to say that most course materials were transpositions of what was offered to on-campus students. A proposal floated in a seminar in 1980 that suggested to an audience of academics (few in number) that instructional designers be employed in the College to help in course development fell dismally flat. Most External Studies Unit work lay in printing, storage and dispatch of course materials.

In the early eighties there was an explosion in the numbers of students wanting to study externally and more academics were showing an interest in learning about how to write external materials. In 1982 a group of academics began the development of the Graduate Diploma in Distance Education, and their activity, together with the appearance of high quality materials for the course further stimulated interest in distance education.

Several of the academic team responsible for the Graduate Diploma joined the External Studies Unit resulting in moves towards academic staff development with a strong **student support orientation.** The Unit's operations at the Magill campus retained a cottage industry flavour, with little or no involvement in staff development - the Unit's role was virtually that of a mail box.

Within the External Studies Unit a position of Coordinator of Resources Design and Evaluation (CRDE) was created, at Senior Lecturer level. The Coordinator became closely involved in the development of several courses, both with individual lecturers and more significantly, with course teams. Under his guidance print and non-print production were organised, and a computerised tracking system of materials in the various stages of production was developed. In 1988 more staff were recruited, and the employment of several editors enabled desk-top publication for targetted courses and units.

ASIS had two subsystems peculiar to External Studies, one for Production and Stock Control, the other for Assignments and Dispatch. Administration of external student matters other than production, assignments traffic, and dispatch of materials was done in External Studies only in conjunction with Student Records. Each of the Underdale and Magill campuses had an academic as Campus Academic Coordinator. The Coordinator was responsible for the campus unit posting out registration and enrolment packages and above all the learning materials for the students, and then the assignment traffic as assignments came back from students, were referred on to markers, returned by markers, and posted back to students, with all the dates of these transactions and the marks given for individual assignments entered in ASIS.

Partly as a result of taking on some of the registration and enrolment work to help out Student Records at a particularly busy time, the External Studies Office at Underdale (but not at Magill) decided to incorporate the registration and enrolment of external students at Underdale, City, Sturt, and Salisbury campuses into its regular responsibilities. There were two main reasons for this - it had been found that enrolment of external students by campus Students Records staff was often done incorrectly or not at all, simply because these staff (at time of enrolment, they were frequently casual employees) were not familiar with the external mode. And if External Studies did the enrolments it meant that the students got on the dispatch lists more quickly and therefore got their learning materials in good time.

The next development of student administration and services in External Studies was a logical consequence of the notion of the primacy of student support. Granted the need for students to have immediate and ready access to the College from initial inquiry about courses to the receipt of the first learning materials and then through to the completion of their studies, it became clear that the best strategy was for student administration and services in the Unit to act as a **one-stop shop.**

The **one-stop shop** was to be as much a conduit for messages from students to teaching staff as it was a point of effective responses to student enquiries. This is important to understand, as the Unit was too often accused of wanting to take over the role proper to academic teaching teams/individuals or Campus student administration.

The conversion of student administration and services in the Unit to a one-stop shop involved a number of processes. First, the Unit argued that it would be responsible for the registration and enrolment of all external students. This meant that the Unit had to obtain staffing at the levels of classification and, more importantly, competence common in student administration throughout the College. It also meant an expansion in the number of computer terminals available to the Unit. Both staff and terminals were successfully negotiated with the College.

Next, the number of Academic Coordinators had to be bolstered. Two were appointed, one for courses on the three campuses City, Sturt, and Underdale, the other for Magill and Salisbury courses. Each coordinator was provided with a terminal, and a 008 toll free line as well as a local phone (and a message machine). Students (and staff) were directed to contact the Coordinators first, and their telephone numbers, local and toll free, were included in all College publicity. The establishment of the two Academic Coordinator positions was also significant in that for the first time the Coordinators were general staff, of the same level as the campus Academic Officers and fulfilling many of the same functions except, and this is significant, they had responsibility for counselling students in many more courses than the typical Academic Officer who was limited to the courses offered on his or her home campus.

When HECS was first introduced the External Studies Unit did no more than act as the mailing out service, with most of the primary HECS information being included with re-enrolment and enrolment packages, together with a College Guide which attempted to facilitate students handling of HECS.

HECS was administered centrally, as was the Corporate Fee that students were required to pay as a compulsory fee for student union services. The central system clearly did not work satisfactorily (staffing resources were too few to cope with the volume of work), and there is evidence to suggest that the high resignation rate in 1989 amongst external students was due both to resistance to and misunderstanding of HECS and to frustration at the inability of students to get answers from the College about HECS.

The External Studies Unit then proposed to take responsibility for HECS and Corporate Fee administration for external students from the beginning of the second semester of 1989, the first year of HECS. It was a decision taken very reluctantly as it was felt that HECS was always going to be negatively perceived by students and that the Unit would be tainted by some of that student resentment. What predominated however, was the conviction that we had to service external students in all aspects of their course of studies that were not definitively the province of the academics and that if the HECS scheme was a problem for external students then we were the logical choice for sorting it out for them. Consequently, one staff member was provided by the College to be Fees Officer, together with the necessary establishment - terminal etc.

The College Council had decided two years before this that External Studies printing, production, and delivery should be centralised as a move that was patently economically rational. Lack of space in the College had prevented the immediate implementation of this Council decision but in 1989 it was made possible, by hiring and fitting out a transportable building for the production staff and then moving the Magill campus staff to Underdale to the space left by the production staff.

Stand-alone metal shelving was also purchased, and existing compactuses re-configured to make them more accessible to staff users The bays were lined up as side by side bookcases, with the front bays sliding on lateral tracks — a huge improvement when one wanted quick and easy accessibility to materials. A fireproof room was set aside for the storage of master copies of the external materials (the process of getting these has proven to be lengthy and difficult), and the Unit moved to a pre-packaging strategy, at least for those materials that were held or could easily be re-printed because the masters were held in the Unit.

The replacement by general staff Academic Co-ordinators of the academic staff who had held the positions meant that one of the academics was able to assume the role of Coordinator: Teaching and Student Services in the Unit. This role included functional supervision of the Academic Coordinators in student administration and services, interface with the relevant academic groupings within the College (Schools as well as policy bodies) and with individual academics, and implementation (proactive where possible) of a range of support strategies consistent with the student support orientation of the whole Unit.

The following comparison may help illustrate the changes in the area of student administration and services over two years, as the one-stop shop strategy took effect:

Functions	1988	1989 - 90
Administration		
toll free phone	limited to two	unlimited weeks pre-enrolment
pre-course counselling	limited, especially as interstate enquirers were to be referred to the central Student Information Centre	range of services increased, and more collaborative arrangements made with campus and central Units
application forms for courses	limited to SA applicants; others to pay Tertiary Admissions Centre fee	unlimited
availability of terminals	one each for Dispatch and Assignments	one for each Academic Coordinator, Fees Officer, Data Entry staff and extra for assignments staff
registration processing and data entry	no	yes, for all external students
enrolment authorisation and	yes	yes
data entry	no	yes
fees (HECS, Corporate Fee)	no	yes
External Studies Handbook	edited by Academic Officer	ESU responsibility
leave, extensions, withdrawal applications etc	yes	yes

Function	1988	1989-90
Services		
warehousing of materials	limited	unlimited
computerised stock control of materials	no	yes
dispatch	yes	yes
assignments traffic	yes	yes
retention/storage of Master Copies	very limited	yes, for all available

What all this means to the students is that they are able to direct all their enquiries, from initial interest in a course to actual enrolment, administrative changes during the life of their studies, dispatch and assignment enquiries etc etc immediately to one or other of the Academic Coordinators in the student administration and services section of the External Studies Unit and know that they are going to get through and be attended to.

All the relevant information about a student and the student's academic progress is contained in ASIS and immediately available to the Academic Coordinator as he or she talks with the student. This information includes enrolment details, what materials were dispatched and when, receipt numbers for payment of fees, HECS liability, receipt of assignments, grades for assignments, how long the assignment has been held by the teaching department and so on.

Should the student be calling about some aspect of their study that is appropriately dealt with by the lecturer then they can be transferred to the lecturer's phone extension or an assurance given that the message will be passed on to the lecturer. (Since Campus Student Services who provide such services as counselling, study skills advice etc, are separate from the External Studies Unit, then the students sometimes have to be referred there too, if the problem cannot be dealt with by the Unit. A significant part of the External Studies Handbook is dedicated to a description of the service provisions of the Student Services groups on each of the campuses and advice on contacting them.

Clearly, the one-stop shop service that the External Studies Unit aspires to has an organisational gap with regard to Student Services. One of the key recommendations of a CTEC-funded project on support for external students in SACAE is the establishment of a coordination position to integrate student support services offered by External Studies and others. The benefits of such a co-ordinated role for students are too obvious to require spelling out here. The placement of such a position is not a problem organisationally for External Studies, and the Unit will argue that the Coordinator: Teaching and Student Services is the appropriate person to play the coordinating role. Ease and immediacy of contact for external students are more important considerations than the location of the coordinating role in the College, however, and these issues will be raised early in discussions within the College External Studies Committee when the Project recommendations come before it.

Problems

The External Studies Unit remains the only centralised operation dealing with academics and students - in the rest of the College devolution has been implemented or is still being implemented (for example, all print expenditures on behalf of a School will soon be costed directly to that School). This leads, unnecessarily it can be argued, to problems of communication and of decision-making.

It is indisputable that the biggest problem for external students, and it appears it is system-wide, is access to lecturers. This is exacerbated by the differences and distances implicit in a multi-campus institution. The one-stop shop approach provides a partial answer, since, when the student has tried unsuccessfully to contact a lecturer, External Studies can on request, get a message to the lecturer through the internal mail system or by use of fax if the matter is urgent.

Access becomes a critical issue in cases where College academic or DEET regulations specify a penalty. The most obvious are the two HECS Census deadlines (31 March and 31 August) but just as important academically are the withdrawal without penalty dates, which determine the grade the student will be given for the unit. Two "withdraw fail" grades in the one unit places the student "at risk" and can lead to a recommendation from the committee responsible for review of the student's academic progress that the student suffer some process such as suspension or preclusion from the unit for a period.

Students know that they can ask the Academic Coordinators in External Studies Unit to act on their behalf in submitting a withdrawal or even a resignation. The date on which they make contact with the Unit is recorded as the effective date of withdrawal, even though the Academic Coordinator will still have to refer the document to the academic course coordinator for recommendation and then to the relevant Campus Secretary for final approval.

Equally stressful for students are the occasions when they need advice from one of the teaching staff and they are unable to make contact. Students acknowledge that being able to talk about it with one of the Academic Coordinators in External Studies is itself a relief, and of course the Academic Coordinators have many more avenues open to them for reaching the lecturer, who, in many cases, is simply unavailable because of lecture commitments at a time which is more convenient for the students.

It must be acknowledged that many academics resent the intermediary role played by Academic Coordinators, or by the Unit as a whole. It is seen as intruding on their autonomy, interfering in communication between them and the students, giving advice outside their area of competence etc. No doubt, in a better-resourced academic world, each School would have its own academic liaison person who would play at least some of the aspects of the role now played by the Academic Coordinator. As far as SACAE is concerned that world never existed and the chances of ever getting it are illusory, to say the least. The economy and convenience of the one-stop shop approach through the Academic Coordinators and its demonstrable success to date are strong arguments for keeping the strategy.

Increasingly, students are taking units from other courses and Schools than their own, which makes the Academic Coordinators even more necessary, since no one School liaison person would be able to handle the volume and diversity of inquiries and complaints that the Academic Coordinators are trained to. Granted the significance of up-front development costs for a unit, it is only good sense to maximise the availability of units across as many courses as possible and academically acceptable. External programs of study based narrowly on Schools are not viable post-Dawkins.

Mergers

At the time of writing (August 1990) there is agreement between the South Australian Institute of Technology and SACAE that the Institute and three campuses of SACAE (Underdale, Magill, and Salisbury) will merge to form the third university in South Australia (called here The University of South Australia (TUSA) (Mawson, Florey, and David Unaipon are other names being suggested for it). It is proposed that the City campus of SACAE will merge with the University of Adelaide (which has already taken Roseworthy College under its wing), while Sturt campus is to merge with Flinders University.

As part of the Institute-SACAE amalgamation, it has been agreed that the Distance Education Centre, now part of SACAE, will transfer intact to the new university (thus marking the end of the only non-university DEC among the eight currently existing). The place of the DEC within the new university and its future structure, organisation, and functions are the subject of a review within SACAE now nearing finalisation.

The future opportunities for external students in the new university and the other universities in South Australia appear to be unequal. Those within the new university can expect the same level of service (we hope to enhance it, of course) as they experienced in the former SACAE. The situation with students in the other universities is not so clear. Neither Adelaide nor Flinders has an infrastructure to deal with external students, and in each of them the proportion that external students will represent, at least initially and probably for several years, will be negligible. It doesn't make sense for either university to invest in an infrastructure, even minimally.

But how will non-DEC academic and administrative staff regard the continuation or discontinuation of the sort of External Studies service that their students have previously experienced in SACAE? How will new students in the non-DEC feel about dealing with administrative matters, an application for leave, for example, through another institution, the DEC? Just as much to the point, what costs will the non-DEC incur in contracting for these services from the DEC, granted that they will already have parted with 15 percent or 25 percent of EFTSU dollars for development costs?

It is clearly DEET's expectation and intention that non-DECs, unless they be specialist providers, get out of distance education. In the immediate future there has to be a transition period however, and neither the DEC nor the non-DECs in South Australia will be content with anything other than full services to their distance education students, even though the non-DEC institutions may decide in the long run to get out of distance education provision.

It can safely be anticipated that there will be numerous students in the non-DECs, in South Australia and elsewhere, who will want to take units, or even a strand of them, in one or other DEC course, so the questions remain - how will they be serviced, and how will they and their teachers respond to what must of necessity be fairly tight administrative guidelines?

Answers to these questions will be complicated by the need to provide for HECS. There have been improvements in the system of payment of HECS or lodging of Payment Option Forms by external students but turnaround in the mail is still a problem for a significant number. The easy way would be to stick rigidly to an early deadline both for applications and for registrations of all external students but SACAE staff have always been reluctant to impose this. The feeling has been that individuals and their circumstances should wherever and whenever possible, be accommodated - there is an instinctive rejection of allowing HECS to become the tail that wags the admissions dog. More, there is a growing acceptance of the idea that (resources permitting) students should be allowed maximum freedom in choosing when to register and when to begin their course/s of study, in other words, rolling registrations and rolling dispatches. HECS will just have to be handled creatively.

In preparation for the DEC era, and specifically to be able to handle students from non-DECs, the External Studies Unit has begun a re-vamp of its computerised systems. The College will create a stand-alone information system - Distance Education Centre Information System or DECIS - that will incorporate the same facilities as the present ASIS system but enhanced to ensure easy tracking of students and access to lecturers in the non-DEC institutions. The decision has been made to stick to the one-stop shop approach as that which is most supportive of students - the challenge will be for non-DEC institutions to ensure clear understanding of the requirements of this by their staff and students, and maximum cooperation with DEC student administration and services staff.

Whatever the endeavours of both the DEC and non-DEC institutions, it is clear that central to them will be staff development, especially of academic staff engaged in distance education. Once teaching staff become aware of the primacy of student support in distance education they should be moved to produce better external materials that embody support principles and practices, and to obtain the best administrative and services arrangements possible as further support of their students.

15TH INTERNATIONAL CONFERENCE ON DISTANCE EDUCATION, CARACAS, VENEZUELA

By Ann Henderson
Deputy Principal
Open College Network
NSW TAFE Commission

This is a report of the 15th International Conference in Distance Education (ICDE) which was held in Caracas, Venezuela from November 4-10, 1990.

After the introduction, theme and format of the Conference, the report looks at the context of the conference under the nine conference topics. It briefly outlines the keynote addresses and scans some of the parallel sessions that followed. It summaries the Broady Lecture and concludes with my personal gains from attending this conference.

The 15th International Conference in Distance Education held in Caracas was the first to be held in a Latin American country.

With 1,300 delegates attending from 60 countries, this was an excellent opportunity for distance educators to meet, share experiences and ideas; to form links and initiate areas for collaboration and co-operation to further expand the role of distance education as an educational medium worldwide.

Conference Theme

The conference theme "Development and Access" provided an opportunity to look at new strategies for developing distance education in view of new technological developments and the need to assist developing countries to introduce ways for their people to access distance education to help budge the gap between developed and developing nations (or North and South).

A continuing theme was the need to educate not instruct; to place the emphasis on the learner not the teacher and the desirability for the learner to be able to access life long learning in order to keep abreast of technology which demands continuous training and retraining of the workforce. With the rise in education as a leisure pursuit and the need to educate large numbers of people in underdeveloped countries, it is clear traditional education with its specific time and place for learning cannot hope to meet these demands. The development of, and access to distance education is therefore not a way forward but THE way forward to the future.

Major Conference Topics

Distance Education and Development

Keynote speaker: Luis Penalver, of UNESCO, Venezuela looked at possible strategies for the further development of distance education and collaborative ways this could be achieved between ICDE and UNESCO working together with governments around the world.

Greville Rumble's paper, the global issues of training and education of the future and the threat of competition between distance education providers.

Other papers under the topic were case studies such as Passornsiri's paper of the first 10 years of Sukhothai Thammalthirat Open University in Thailand and Dayanth Wijeysekera's paper on the importance of science and technology in distance education in developing nations. Other papers looked at distance education as a tool for social change at the macro and micro levels.

Strategies for Developing Distance Education

Fay Chung, Minister of Primary and Secondary Education in Zimbabwe stressed the important role distance education has to play in bridging the gap between the 'north and the south', the cost effectiveness of distance education and the need for the development of human resources so that the third world does not continue to suffer from underdevelopment.

The parallel sessions looked at the development of staff and tutor support in the UK and NZ and innovative ways in which institutions in the US and Australia are using distance education or open learning to meet the educational needs of business and industry. Other papers looked at the growth of distance education in India and the planning that took place in developing a strategic plan for the Open Learning Agency in British Columbia.

Distance Education and Developing Countries

John Daniel, Vice Chancellor of the Open University in the United Kingdom and other speakers in parallel sessions covered three main themes:

1. The pressing need for developing countries to establish distance education as the only viable way to expand instruction. In the western world distance education can be an option. Colwevin in his paper maintains that in the third world it is a necessity.

2. All institutions are a product of their national context and that this is where so often the difficulty and constraints lie. Armengol and Stojanovich from Venezuela looked at inherent problems in discovery, dissemination and application of knowledge in developing societies.

3. Students needs generally appear to be similar the world over.

Literacy: The Challenge of the 90's

Teresa Roserley Neubauer da Silva from Brazil covered the spectrum from illiteracy and its causes to the potential of distance education in contributing to the solution of the literacy problem. There was only one parallel paper on literacy given by Janice Eldridge and Wayne Darnley from Australia. I was disappointed that this area was not better covered at the conference particularly as it was the Year of Literacy and because it is crucial in the developing world as a first step in bridging the

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education gap.

Research and Development

Jocelyn Calvert discussed ways that distance teaching institutions and researchers in distance education can build research capabilities while improving their practice.

Most of the other papers contributed to and expanded on this theme, outlining research in their countries ranging from Borje Holmberg's personal perspective on research in distance education to the evaluation of programs in Botswana and Israel. There were also papers concerned with the basic questions related to student behaviour and student concerns.

In short, the message was the need for all distance educators to continually look at research that has or is being undertaken around the world and to put that research into practical programs for the further development of distance education.

Producing Materials for Distance Education

Would a distance education conference be a distance education conference without looking at the production of materials. Janet Jenkins from the Commonwealth of Learning in Canada gave one of the best keynote addresses. The topic was "Dogma, Ritual and Reality in Distance Education, Re-evaluating the Process of Materials Development". Janet, whilst acknowledging the importance of instructional design, poses the question "Do we know if it is good course materials that make our students learn?" More research needs to address this and more resources put into the training of staff in writing and editing before we put more resources into instructional design.

This theme of further training was picked up in the parallel sessions. Many of the parallel papers dealt with the production of materials in mathematics science and technology. A parallel paper of note was David Murphy's where he looked at the theory of instructional design and skills required of an effective instructional designer.

The Students of the 90's: New Clients, New Needs

Mr Wijeysekera of the Open University in Sri Lanka profiled the new clients of his Open University in Colombo. He looked at ways in which we can support our students in this new and diverse environment by:

- instituting dialogue with our clients
- providing quality printed materials
- establishing correct technological support

- providing local support.

Parallel papers sought to answer some of the following questions. What kind of support should we give our students? Is personal contact necessary? Distance education is expanding, how are we going to comprehend the needs of our clients thus making them the centre of their learning and partners in their education?

Technology Applications

In presenting the paper "Technology and Education, Friend or Foe", the keynote speaker advised caution in incorporating new technology, care in analysing the target clientele so that the technology incorporated will meet educational needs and requirements and not encourage technology for technology's sake.

One of Pelton's salient points was the necessity to win staff support and acceptance of technological development in order to ensure technology will be effective in distance education.

Parallel sessions followed through on this theme alerting those establishing technological mediums of the zealots that wish to institute their favourite type of instructional technology. Ross Paul had some counter arguments for those expanding computer capacity and Robin Mason and others looked at computer conferencing as a support mechanism for students.

Planning for the Future

Ram Reddy saw a need to identify and focus on individual institutions for international co-operation to be successful. He stressed that the sole mission of collaboration is to bridge the North-South gap.

Papers under "Planning for the Future" examined ways in which institutions and countries can collaborate for the ultimate benefit of students. The use of telecommunications and partnerships in the development of courses were discussed and a practical way for partnerships to develop by staff exchanges between universities was outlined in Tait and Brindley's paper.

Broady Lecture

The Broady Lecture has been a feature of ICDE conferences since 1978. They are held as a memorial to Knute Broady from Nebraska who was a founder and early President of ICCE and had attended all the international conferences since 1938.

The 1990 lecture was given by Fredrico Mayor, Director General of UNESCO. The pertinent points were:

1 The role that UNESCO can play in the provision of distance education.

2 The value of having an organisation such as ICDE which is a non government organisation worldwide.

3 Distance education has to work within the constraints of all educational programs, ie political commitments, economic restraints.

4 The value of distance education as a means of widening access to education particularly in the developing world.

5 The gulf between the "haves" and "have nots" and the need to address this before it is widened even further due to the development of technology.

6 The difficulty of promoting distance education in the third world with poor mail services and power cuts hampering the use of technology.

7 The need for technical co-operation.

The lecture concluded by emphasing the need for better access to distance education. That it is THE way in bringing education to all.

Conclusion

Having briefly outlined topics and aspects of the conference I conclude my paper by outlining the benefits that this conference had for me personally as a relative new comer to distance education.

I was impressed by the commitment to distance education that all delegates had.

Having been raised and educated in the "south" (India) I was able to relate to the role distance education can play in the education of the masses" and appreciated the inherent problems and the challenge to overcome them put forward by developing nations.
My personal interest is in student support and the development of staff to meet this need. I came away with plenty of food for thought.

I made contacts and formed new friendships, a vital plus of any conference and of even more interest and benefit when some of these are from other countries.

I thank ASPESA for contributing to and sowing the seed that sent me on the road to Caracas.

The Conference Proceedings are available by contacting ICDE at:

The Permanent Secretariat
ICDE
Gjerdrums vei 12
N-0486 Oslo 4
Norway

THE TAFE VIDEO-CONFERENCING BREAKTHROUGH

A Brief Report on the pioneering achievements of the South Australian Department of Employment and TAFE in Video-conferencing*

By John Mitchell
Video-conferencing Project Director
South Australian Department of Employment and TAFE

1990 will be remembered as a watershed in the use of compressed, digital transmission for live, interactive television between more than two sites.

The Light College - Adelaide College Video-conferencing Project (launched by the SA Department of Employment and TAFE (DETAFE) (launched in February 1990) is the most ambitious educational video-conferencing network, using digital transmission, ever developed in Australia. The resultant video-conferencing courses have met with acclaim not only from the immediate users, the lecturers and the students, but also from scores of educators from around Australia and overseas.

The Project represents a significant breakthrough in the delivery of education, and opens up numerous possibilities for linking TAFE Colleges to remote campuses, workplaces, prisons, centres for the disabled and other institutions. The Project has also opened up opportunities for other SA educational providers and Government Departments to share TAFE's proposed video-conferencing network.

This paper provides a brief report on the SA DETAFE's video-conferencing achievements in 1990, and an indication of the future directions TAFE is intending to take in the field.

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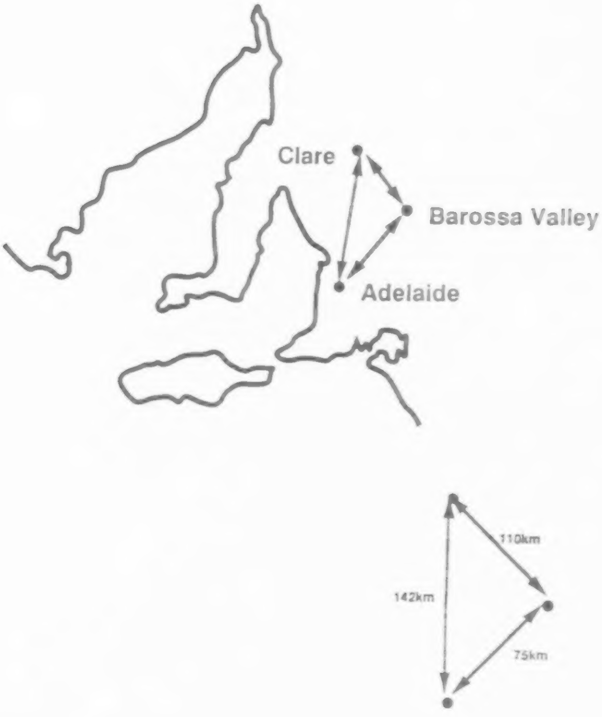
* This paper also appears in the Australian Teleconferencing Directory, 1991.

Overview

Using compressed digital transmission techniques, the SA DETAFE conducted video-conferencing courses between three sites from February to June 1990, and in July 1990 a fourth site was added to the network. The February-June courses were undertaken as Pilot Trials, but the 4-site network established in July 1990 is seen as a permanent part of an expanding DETAFE video-conferencing network.

For the February - June trials, three TAFE sites were linked: Adelaide College of TAFE in the city of Adelaide; the Barossa Valley campus of the Light College of TAFE (75km from Adelaide); and the Clare campus (142km from Adelaide and 110 km from Barossa Valley). (See Figure 1)

Figure 1



Light College/Adelaide College
Video-conferencing Network
February - June 1990

NOTE

The author is compiling an extensive Evaluation Report on the first six months of video-conferencing trials in South Australia. A number of references to the Report will be made in this paper. Enquiries about the availability and cost of the Report should be directed to the author (phone (08) 348 4598).

A 21 minute video-tape on aspects of the Project is available for $30 (or $11 for SA TAFE) from the Centre for Applied Learning Systems (CALS) at Adelaide College of TAFE (phone (08) 213 0235).

The origins of the Light College-Adelaide College trials are set out in the "Progress Report on the Light College-Adelaide College Video-conferencing Network Project." Copies of this Progress Report are available, for a nominal cost, from the author at Regency College of TAFE, Regency Part SA 5010. The Progress Report includes the rationale for the Project; a description of the two Colleges involved; the values behind the Project; the Aims and Objectives; the Evaluation methodology; a description of the network and the technology; courses to be offered; methodologies and staff development; student support systems; and Project Management structure and functions.

The trials involved the transmission of 26 courses, for up to 25 hours per week, over a 21 week period. In any one week, up to 12 different courses were transmitted. As well as courses, the medium was used for numerous other activities such as staff development exercises; one-off Seminars, Workshops, and Conferences; administrative meetings; and a range of demonstrations and experimental activities.

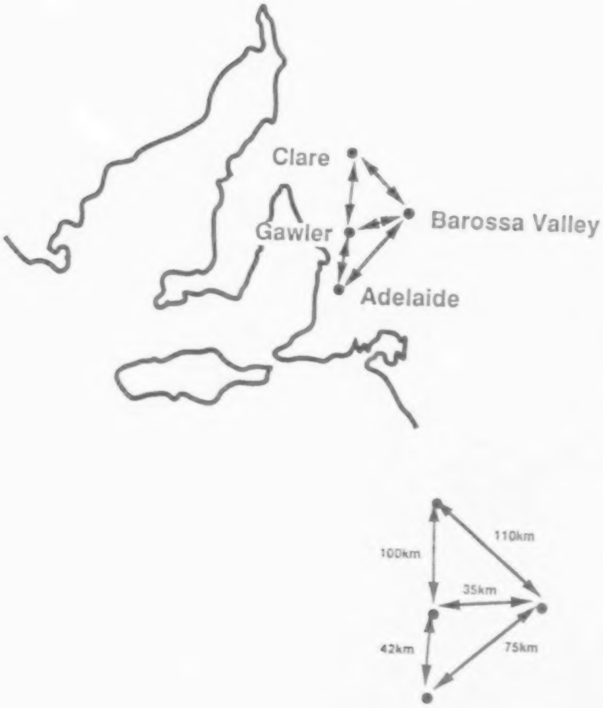
During the trials, courses never offered before at Light College were delivered in fields such as Customer Service and Sales Techniques, Building Practice, First Line Management and Rural Property Planning. Some of the very successful applications of the medium were for cooking demonstrations; a practical session on engine maintenance; a course on French for Winemakers; and for courses requiring the transmission of computer screens. The most uplifting session of the whole six months was conducted by the Deaf Society of SA, in which the deaf participants communicated by sign language over the medium.

In almost all of the 26 courses, video-conferencing sessions were supplemented by other learning modes, such as external studies materials, duct audio-conferencing tutorials or a local tutorial.

28 lecturers conducted sessions, and a further 25 underwent training in the medium. All lecturers were volunteers, and the trials stimulated enormous interest amongst lecturing staff because of the "user friendly" nature of this delivery medium.

In July 1990 the third campus of the Light College, at Gawler (42 km from Adelaide; 35 km from Barossa Valley; and 100 km from Clare), was added to the network. (See Figure 2). It is now possible for the lecturer to conduct a session from any of the four sites.

Figure 2



Light College/Adelaide College
Video-conferencing Network
July 1990 - onwards

This network is presently used to transmit aspects of 11 different courses per week, for up to 16 hours per week. Regular courses include Business Law 1 and 2, Computer Applications, Real Estate Sales Practice, First Line Management, Office Practice, Introductory Accounting, Financial Mathematics, Health and Nutrition, Product Costing and Watering Principles.

The success of the network has led to plans for considerable expansion of the activity within the SA DETAFE.

The Project Partners

The initial trials and the ongoing network are the result of the co-operation between, firstly, SA DETAFE and Statelink, a business unit of the SA Department of Services. Statelink has been an active partner in the project since early 1988, and has provided telecommunications advice and guidance throughout. (Representatives of organisations interested in the supply of video-conferencing systems are invited to contact Julie Carr, Manager, Operations and Marketing, Statelink, phone (08) 2267150.)

Financial support from the Department of Employment, Education and Training (DEET) through the Innovative Rural Education and Training Programme, was significant in launching the project.

Within the SA DETAFE, many sections have co-operated to ensure the project succeeded:

- the Light College and Adelaide College and their Councils
- the Centre for Applied Learning Systems
- Curriculum Services Division
- Physical Resources Division.

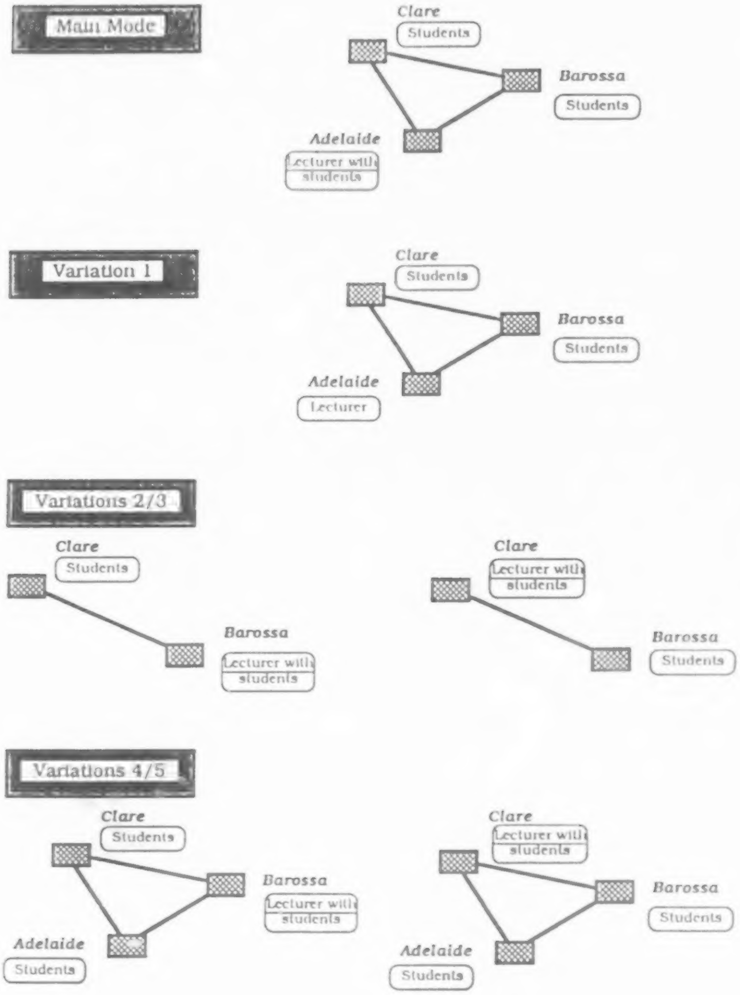
A wide range of TAFE Colleges and Divisions are now involved in developing the concept further.

The Educational Networks

The video-conferencing links changed from a three-site network to a four-site network in July 1990, as mentioned above, and some important enhancements were added in July.

From February to June 1990, courses were conducted between the three sites of Adelaide, Barossa Valley and Clare. Lecturers could teach from any of the three sites, but most taught either from Adelaide to the other two sites or from Barossa Valley to Clare. See Figure 3.

FIGURE 3


Main Mode
Clare
Students
Barossa
Students
Adelaide
Lecturer with students
Variation 1
Clare
Students
Barossa
Students
Adelaide
Lecturer
Variations 2/3
Clare
Students
Barossa
Lecturer with students
Clare
Lecturer with students
Barossa
Students
Variations 4/5
Clare
Students
Barossa
Lecturer with students
Adelaide
Students
Clare
Lecturer with students
Barossa
Students
Adelaide
Students

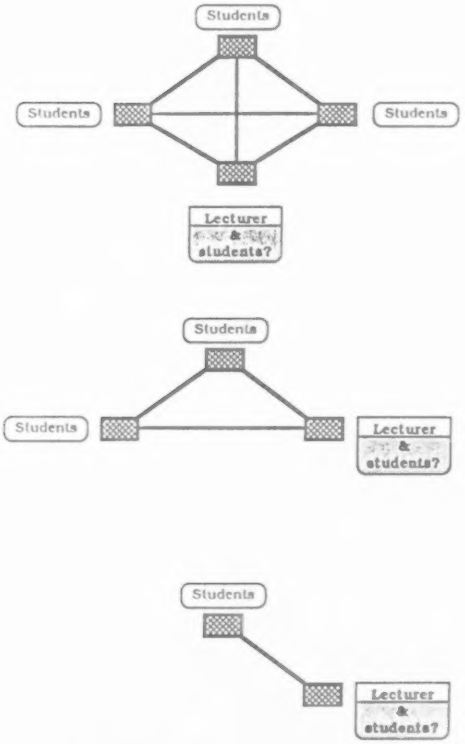
Video-Conferencing Network
February - June 1990

During this period the main control site was at the Adelaide College of TAFE, and the two point-to-point networks (Adelaide-Barossa Valley and Adelaide-Clare) were patched together in Adelaide. Hence, when Barossa Valley and Clare were linked, the signal passed through Adelaide.

For most of the 26 courses this two-legged configuration was transparent to the users. If, for example, the lecturer was at Barossa Valley and the students at Barossa Valley and Clare, then the monitors at the Adelaide site could be switched off, and the class proceeded as if it was a normal point-to-point connection. However,the major limitation of this system was that if the lecturer was at either Clare or Barossa Valley and there were students at Adelaide as well as Clare or Barossa Valley, then a staff member had to be available in Adelaide to control the flow of images. In practice, this was only required in two out of the 26 courses.

When Gawler was added to the network in July 1990, an important switching enhancement was devised by CALS staff members Paul Rixon (Methodology Adviser) and John Ingham and implemented by John Ingham (Supervising Technician, Video). Using a simple telephone dialling pad to select the images, a "quad split" picture of all four sites can be seen on the screens simultaneously at all four sites, or the lecturer can select the image from any one of the sites for transmitting to the other sites (although the site selected continues to see the quad split image, not itself). Most significantly, the lecturer can be based at any of the four sites, and can now control the flow of images. Refer to Figure 4.

FIGURE 4



Video-conferencing Network
July 1990 -

Evaluation Process

The emphasis during the trials was on formative evaluation, and everyone involved was encouraged to evaluate the medium. This resulted in the ownership of the trials by those involved, and constant refinements and improvements to the technology, methodologies and student support systems.

The Evaluation Report contains the evaluation framework which sets out the rationale for a qualitative as against a quantitative evaluation methodology. Observations, interviews and discussions were conducted throughout the trials, to monitor and respond to student and lecturer experiences. Four separate student questionnaires were distributed to students with around 400 returned for analysis and response by the project staff.

The Evaluation Report emphasises the high level of student and lecturer acceptance of the medium; the interactive capacity of the medium for teaching and learning; the breadth of courses and uses made possible by the medium; the issues involved in cost-benefit analyses of video-conferencing; and the new staff development and administrative procedures required.

Student Responses to Video-Conferencing

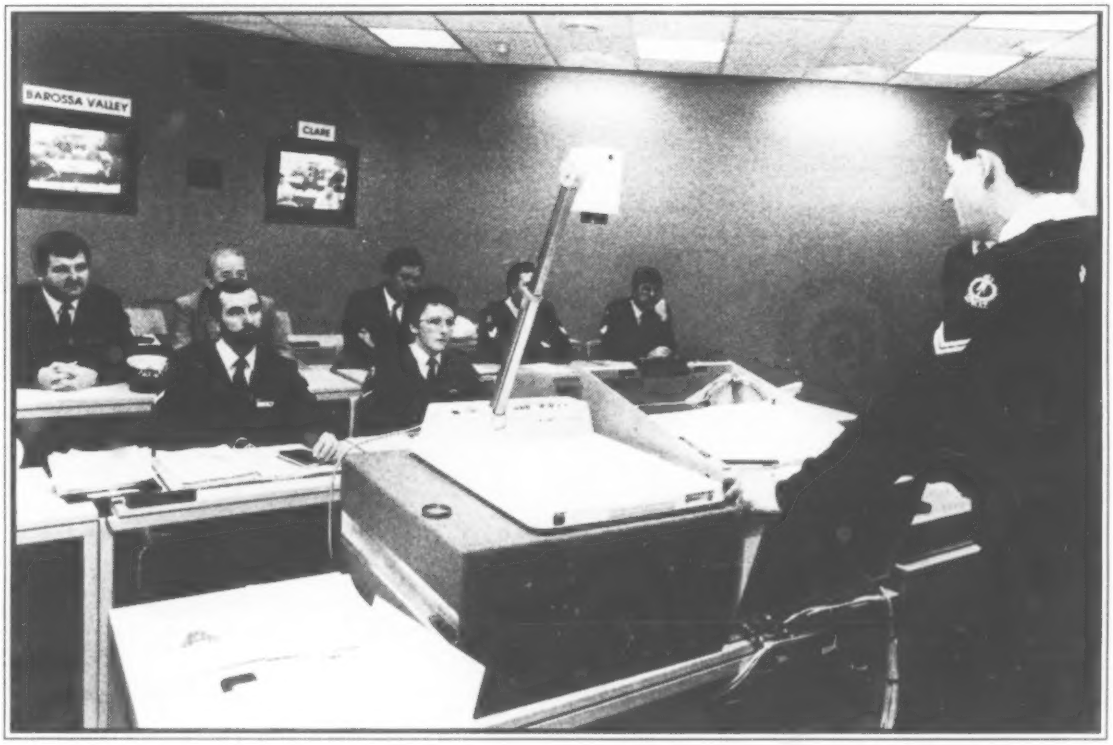
The significant findings regarding student responses to the video-conferencing trials include:

- The vast majority of students perceived video-conferencing to be an effective medium for learning, and were excited by its potential for increasing access to TAFE courses.
- Most students surprisingly rated video-conferencing courses to be as good as or better than conventional face-to-face courses.
- Students overwhelmingly rated video-conferencing courses as better than all other forms of non-conventional course delivery.
- Video-conferencing students' results in formal award assessments were almost always as good as or better than results from conventional classes. These results endorse the use of video-conferencing sessions as part of an effective multi-mode delivery system.
- Students' high level of acceptance of, and successful adaptation to, the video-conferencing medium was due to the satisfaction of students' needs. These needs, which were identified by Catchpole (1986), include affiliation,

interaction and the use of a number of visual and verbal delivery systems.

- When students were interviewed individually about video-conferencing courses and their own learning, their verbal responses were always much richer and more elaborate than their written responses to questionnaires. These responses revealed that students have a range of attitudes about how they learn best, and what sorts of teaching methodologies they prefer.

FIGURE 5



The S.A. Police Department using the network, with officers participating at Adelaide College (pictured), Clare Campus of Light College and at Barossa Valley Campus of Light College

A Student Learning Framework for Educational Video-Conferencing

Drawing on the evidence accumulated during the trials, a student learning framework for video-conferencing will be developed in the Evaluation Report. This sets a precedent in Australian educational circles, and answers the challenge put by Castro (1989) that an educational framework should be devised for new technologies in which

> *"technology is no longer an entity in its own right but subsumed under a larger framework of student learning." (p. 9)*

In the Report, student learning will emerge as a force which can drive video-conferencing technology, not the other way round, when educators are responsive to students' needs.

So much evidence was acquired during the trials, the staff involved in evaluation were taken below the surface level, and found a wide variety of student responses to the situation they found themselves in, and a cluster of student needs and attitudes. While most of these findings are still encouraging about the benefits of video-conferencing, and some of the findings were unexpectedly positive and exciting, an elaborate picture emerges of learning styles and preferences. This picture of a wide cross-section of TAFE students will have value for TAFE educators beyond the context of video-conferencing.

This focus on students' learning supports Castro's (1989) argument that there should be a research emphasis on learning from the student's perspective, instead of a pre-occupation with course and technical design:

> *"There will always be a role for course and technology design, but there are also those variables from the student's perspective to be considered, which have been found by some researchers to have equal if not more impact on the outcome of learning (Morgan, 1989)." (p. 8.)*

These variables include the students' motivation for study; their approach to study; their understanding of the nature of learning; and whether the students feel they have "some control and share of responsibility of the curriculum, the tools of learning and the educational outcome." (Castro, 1989, p 8.)

FIGURE 6

Another view of S.A. Police Department participating in a video-conference

Meeting Video-Conferencing Students' Needs

The evaluation of student responses to the medium confirm that the TAFE video-conferencing delivery system was successful largely because it met the three main students' needs which Michael Catchpole (1986) identified as crucial in an educational delivery system. Catchpole has taught weekly psychology courses in Canada on the Knowledge Network satellite service over the last decade and has found that

> *"...an ideal educational delivery system (be it traditional or distance) should incorporate a number of visual and verbal delivery systems, should offer students a chance to interact with (rather than just react to) to-be-learned material, and should provide a chance for affiliation with the instructor/tutor and fellow students. Not all students will need all these course components but each course component will be critical to some students." (p. 131)*

Hence, most of the points raised in the section of the Report on Students have less to do with either the instructional design of the session or the technical design, and have more to do with students' perceptions of whether the needs indentified by Catchpole were met during the video-conferencing courses.

For example, evidence from the video-conferencing Evaluation showed that

- Most students enjoyed immediate interaction with and feedback from a lecturer (interaction need), and rated this as the main benefit of video-conferencing over all other modes of learning, apart from the conventional classroom delivery mode.

- Students at Barossa Valley and Clare who were involved in classes where there were students at all three sites were frustrated that they could not see the students at the other two sites, at all times. (Interaction/affiliation needs)

- Students liked to meet their teacher face-to-face at least once during the video-conferencing course, and were willing to travel to another site to meet the students in their class who were located at other sites. (Affiliation need)
- Students enjoyed interpersonal contact with other students, even if it was across a television system, and they especially valued the company of other students at their own site. (Affiliation need)

- The metropolitan students, who may have been expected to see the addition of rural students as an intrusion, were generally very accepting and supportive of the rural students, and saw them as part of their one group. (Affiliation need)

- Most students actively thought about how they wanted to access learning opportunities, and had a range of opinions about teaching styles and delivery modes. (Need for multiple delivery systems)

- Most students appreciated the multi-mode mixture of video-conferencing sessions, external studies materials, and where appropriate, local tutors and practicals. (Need for multiple delivery systems)
- Almost all students who had been involved in courses which used either the Duct telephone system or the external studies material or video-tapes, clearly preferred the video-conferencing mode. (Need for multiple delivery systems)

Meeting these student needs for interaction, affiliation and multiple delivery systems, was viewed as the responsibility of not just the lecturers, but of a range of staff involved in the project from both Light and Adelaide Colleges and CALS. This included campus managers, student services officers, laboratory technicians, instructional designers and CALS technicians. The video-conferencing students' successes are also a tribute to the efforts of these staff.

It was not surprising, given the above, that video-conferencing students' formal assessment results and their retention rate were as good as, or better, than conventional courses.

Students' suggestion for Improvement of the Medium

Students' suggestions for improvement were invaluable in helping the project staff modify the technical system and in helping the lecturing staff re-assess their delivery methods.

A minority of students saw the medium as inferior to conventional classroom delivery. This attitude was strongest in those few courses where the lecturer used the facilities as if in a conventional classroom, and spoke most of the time, and the students maintained their pre-course attitude that learning can best occur in the conventional teacher-dominant classroom.

Initially, students were divided in their opinions about the role of lecturers. Some wanted the lecturer to dominate and to provide them with content, while others wanted the lecturer to provide them with opportunities to test out their own understanding of the course. However, the majority of students came to feel during their course, that they disliked lecturers talking too much during a session.

There were complaints with the technical system: many students saw the microphones as a barrier to the free exchange of ideas; the size and clarity of some camera shots were cause for some dissatisfaction; and the positioning of monitors in some of the rooms caused concern. Many of these complaints resulted in immediate modification of the technical design.

Lecturers' Responses to Video-Conferencing

The significant findings regarding lecturers' responses to the video-conferencing trials are:

- Lecturers' level of acceptance of the medium was extremely high. All 28 lecturers volunteered to be involved, knowing that their involvement would require additional work on their part.

- Video-conferencing is a challenging new teaching medium: it is more difficult than teaching in a conventional classroom and requires substantial efforts on the part of the teacher if its use is to be optimised. A program of induction is also a necessity if this is to occur.

- Even the full realisation of this additional work did not dent the enthusiasm of the lecturers. At the end of their courses, all lecturers expressed their support for video-conferencing as a teaching/learning medium of great future significance for TAFE.

- The trials revealed a broad range of teaching styles and lecturer attitudes to fundamental issues such as how do students learn and what is effective teaching. These areas warrant further investigation to ensure the continued improvement of video-conferencing as a teaching/learning medium.

- Lecturers' ingenuity in the use of video-conferencing has demonstrated that the medium has extremely broad application.

The lecturers involved in the trials were unanimous in stressing two points: their enthusiasm for the medium and their acknowledgement that it was a demanding medium.

These two themes were summed up in the report from Martin Cielens, Senior Lecturer in Business Studies at Adelaide College of TAFE, who delivered three Communication modules using the medium:

> *"My involvement with the interactive video project was quite sobering. It was extremely hard work and very confrontative in terms of my perception of me as a teacher.*
>
> *"What I have said above may seem a bit daunting. It shouldn't because the nice thing is most of us learn pretty quickly and there has always been lots of help when needed. The most important lesson for me has been to discover how involvement with this medium has fostered a self-evaluation of my professional skills."*

Martin Cielens suggests that as educators we return to exploring the fundamental questions about how students learn and therefore what are the most beneficial practices for teachers.

Margaret Barron, Business Law lecturer at Adelaide College reported similarly:

> *"I found teaching in this mode very demanding and far more taxing than a normal face to face class. In fact, whilst involved in the project I felt more relaxed when taking my other face to face classes.*
>
> *"A project such as this would not succeed if people did not work as a team. I was excited and enthusiastic about the project from the start and I felt that others shared my feelings. Teamwork, I believe, has been a major contributor to the success of the project."*

Lecturer or Student Control

Most lecturers expressed some initial discomfort with the reduced amount of control they had over students during a video-conferencing session, compared with a conventional class. Of particular concern was that the students at Clare and Barossa Valley could talk amongst themselves and not be heard at the other sites unless they pressed the button on their microphones.

Martin Cielens extended this theme further in his report:

> *"In the face to face classroom, the students are on your turf, you are in control (mostly). When things go wrong you can quietly excuse yourself and go outside to collect your wits...The video class does not leave that kind of room for manoeuvre. Students control their end of the interaction. That becomes really obvious when you discover they can switch off the microphones and chat amongst themselves."*

Martin recognised that, despite the new methods this arrangement forced him to develop, there were considerable benefits:

> *"A quality learning process, rather than traditional classroom control then becomes a stronger determinant of direction"*

The major benefit of the evaluation of the SA DETAFE Video-conferencing Trials is that it has pushed to centre stage the key educational issue of how to achieve a "quality learning process" in a video-conferencing course.

Methodology and Video-Conferencing

The Evaluation Report covers many methodological issues, such as

- the effect of the video-conferencing lecturer having students at the same site;
- the effect of different group sizes;
- the benefits of using different student activities during sessions;
- the place of video-conferencing within a multi-mode course;
- team teaching;
- guest lecturers;
- demonstrations;
- length of sessions;
- preparation time;
- induction;
- lecturers' attitudes to teaching and learning; and
- lecturer response to the technology.

The Report contains a detailed section prepared by the CALS Methodology Adviser, Paul Rixon.

The Evaluation Report on the first six months of video-conferencing also contains sections on

- The cost-benefits of video-conferencing for TAFE;
- A discussion of the technology involved;
- A report on the range of uses of video-conferencing for TAFE; and
- An overview of the new administrative procedures required by video-conferencing.

Costs of Video-Conferencing

I have found over the last nine months that most people ask two questions: "Does the system work for the students and lecturers?" and "What does it cost?" I have addressed some aspects of student and lecturer responses in this paper, but it is impossible to answer the question of costs in a short space. However, in the Evaluation Report I attempt to unravel the many issues involved in costing by discussing:

- the notion of cost-benefits;
- shared costs with Statelink and DEET;
- the imperative for TAFE to deliver more courses flexibly;
- the particular needs of multi-campus rural Colleges for video-conferencing;
- the efficiency of using video-conferencing as one strategy within a multi-mode, open learning approach;
- equity arguments for video-conferencing;
- cost-effectiveness of video-conferencing compared to several different benchmarks;
- trial costs versus long-term benefits;
- establishment and recurrent costs;
- quantifiable and non-quantifiable savings and benefits of video-conferencing;
- the possible directions of future technology and changes in costs;
- a rationale for investing in further research and development into video-conferencing for TAFE; and
- labour market and social benefits of rural students remaining in their country towns for courses, instead of relocating to cities.

Planning for Expansion

The Chief Executive Officer of the Department of Employment and TAFE, Peter Kirby, recently appointed five people to form the Department's Video-conferencing Planning and Policy Committee.

The members of the Committee are:

Julie Carr, Manager, Operations and Marketing, Statelink;
John Heneker, Director, Light College;
Brian Kenworthy, Head, CALS;
Bob Miller, Assistant Director, Curriculum Services;
John Mitchell, Video-conferencing Project Director.

The Committee's main functions are to oversee the continuation of the present Light College - Adelaide College Network; and to co-ordinate the expansion of video-conferencing in TAFE, particularly by developing a plan for video-conferencing in the Department.

The Minister for Employment and Further Education, Mike Rann, announced in June 1990 that the Department would introduce video-conferencing into the Spencer Gulf Colleges, and the Committee, in conjunction with Statelink and the Department of Employment, Education and Training, is now making preparations for this expansion.

Negotiations are also continuing with other College Directors interested in video-conferencing; and with large industries who have significant numbers of employees on-site requiring training, and who are interested in funding a link to a TAFE video-conferencing network.

Achievements

The present SA DETAFE Video-conferencing trials have proved that:

- Students can certainly learn using this medium, providing their needs are met;
- Lecturers are willing and able to adapt to it, and the quality of course delivery can be very high;
- The range of courses which can be delivered by this medium is restricted only by the imagination;
- Rural communities are provided with previously undreamt of increases in course offerings;
- It offers considerable cost-benefits, particularly in terms of productivity of rural-based TAFE staff, in Colleges with multiple campuses;
- The state-of-the-art Codec equipment and transmission services now available are extremely effective;
- The medium is suitable for use by a range of disadvantaged groups; and
- It is a major new management tool, particularly in country Colleges.

The Future

Compressed digital video-conferencing is a significant new delivery medium, which the SA DETAFE will use, as one of its strategies, to meet increasing demands for its courses.

This effective use of video-conferencing will be based on a clear appreciation of students' learning styles and their needs; and on the need for suitable induction and support for lecturers. SA DETAFE will ensure that the impressive technology available for video-conferencing will continue to be driven by these educational considerations.

Bibliography

Castro, A. (1989) "Tinker, tailor, soldier, spy - Roles and ideologies in evaluative research on the new technologies." Paper delivered at the Research in Distance Education Conference, Deakin University, November, 1989.

Catchpole, M. (1986) "A guide to producing and hosting a live-interactive telecourse" *Distance Education*, vol 7, no. 1, 1986.

DIDACTICAL MATERIALISM

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We are familiar with criticism of the concentration on the materials of distance education to the detriment of the teaching-learning processes which actually constitute the education of the distance education student. This criticism might be equally made of campus-based education in Australia. For in the last few years we have seen an extraordinary proliferation of satellite campuses.

This development is surprising coming as it does immediately after the 1988 White Paper on higher education, which stated so firmly the Government's commitment to the consolidation of institutions. It is even more surprising that Distance Education Centres, which are ostensibly free of the constraints of campus-based education, have perceived a need to establish multiple campuses, as distinct from study centres. An alternative way of serving regional communities is proposed.

By "materialism" I mean the outlook which recognises and values the material, tangible and corporeal and does not recognise or value the ideal, abstract and spiritual. In distance education we are well aware of the criticism that we are materialist, perhaps the best known being Mary Thorpe's observation:

> *"When people talk about Open University courses, the unspoken assumption most often seems to be that the course is the materials, and the correspondence units in particular. This seems to me too narrow a view of what the course is, and by extension who 'produces' and who 'maintain' it. A course is not the correspondence units, texts and course-related materials produced by the course team; it is not a set of products, but a process, which 'happens' every academic year through the interaction of students, tutors and course team, based on the course materials produced by the centre" (Thorpe, 1979, pp 13-14).*

Similar comments have been made by Sewart (1981) and a more fundamental critique has been argued by Harris (1987, pp 47-8). In Australia Fred Jevons has written about "the grip of print" (1986), Terry Evans about "fiddling while the tome turns" (1987, p 117), and Peter Juler (1990, p 27) about what might be termed, after Blainey (1966), the tyranny of text. In a series of articles Nation (1990a; 1990b) and Evans and Nation (1987; 1989a; 1989b) have given a critique of what they term "instructional industralism" and developed an alternative approach.

This critique, which as I say is by now familiar in distance education, might be equally made of campus-based education in Australia. For in the last few years we have seen an extraordinary expansion of satellite campuses. In my own State, Victoria College has established a campus at Lilydale and Swinburne Institute another at Mooroolbark. Along the eastern coast we now apparently have a higher education campus every 200 kms or so (Wollongong, Sydney, Gosford, Newcastle, Lismore, Coffs Harbour, Byron Bay, Gold Coast, Brisbane, Bundaberg, Gladstone, Rockhampton, Mackay, Townsville, Cairns).

This development is surprising coming as it does immediately after the White Paper on higher education, which stated so firmly the Government's commitment to the consolidation of institutions (p 41). So, during a period of conglomeration of institutions we are seeing a proliferation of campuses. Perhaps even more surprisingly, Distance Education Centres, which are ostensibly free of the constraints of campus-based education, have also perceived a need to establish multiple campuses, as distinct from study centres (UNE at Coffs Harbour, in addition, of course, to inherited campuses at Lismore, Orange and Armidale; and UCCQ at Bundaberg, Emerald, Gladstone and Mackay).

The notion that higher educational institution should establish a 'presence' in important regional and metropolitan centres, and that such a presence is best established by buildings, is as misconceived as the notion that a distance education course is its materials. Of course, some satellite campuses will prove successful as have the universities at Armidale, Newcastle and Wollongong. But for every success there must be other failure, like The University of Melbourne's 'branch university' established at Mildura as part of the post World War II reconstruction, with all the disappointment, waste and unhappiness that closure entails (Blainey, 1957, pp 185-6).

The multiplication of campuses is another instance, in my view, of the materialism we have seen in distance education. In both cases emphasis is placed on the physical aspects of education rather than on the processes which actually constitute teaching-learning. Both are a form of tokenism in an earlier meaning: significance is transferred from the complex reality to symbols of that reality. More specifically, both are a form of the 'packaged teaching' approach (Nation, 1990b, L6) and both are consumerist in placing more emphasis on the packaging than the contents. Both are intellectually unfriendly.

The apparent acceptance of this materialism within the academic community is puzzling since it is as antipathetic to teaching-learning as the much deplored instrumentalism of the 'economic rationalists' (see, for example, Moodie and Acopian (1989) and other articles in the same issue). But it is entirely understandable within the general community. Higher education's special pleading on the grounds of its regional economic impact, based on studies such as Bryant's (1984), hardly encourages an ideal valuing of education. When a regional community seeks to assess the contribution of higher education to its development, bricks and mortar is the only performance indicator available to it. Very rarely do institutions report on participation by region, and it would be virtually impossible for a region to obtain a useful overview of the participation of its population in higher education generally. Again, institutions seem more willing to concede all the educational disadvantages, inefficiencies and diseconomies of regional satellite campuses in preference to making substantive educational concessions to the region such as those suggested by Connell (1987).

In my view, rather than building satellite campuses, we should provide for regions by:

- establishing links programs with schools in the region;

- appointing liaison officers in the region;

- adopting regional selection policies (that is, adapt the procedures and processes to suit regional circumstances, but not discriminate on geographic grounds in a way that would offend the principles annunciated by the High Court in Street v Queensland Bar Association (1988) 88 ALR 321);

- adapting the curriculum to suit regional interests, such as by offering courses with a regional focus;

- conducting research that is of interest to the regional community and reporting it in a way that is accessible to the community.

If higher education institutions, particularly the DECs, made these kinds of provisions for regions we would, I believe, deliver a much better and more soundly based service to regions than the capital provisions we are now making.

References

Blainey, G. (1957) A *Centenary history of The University of Melbourne,* MUP, Melbourne.

Blainey, G. (1966) *The Tyranny of Distance,* MUP, Melbourne.

Bryant, R.J. (1984) "Funding the universities and the 1982-84 triennium - where did the money get to?" Australian Universities' Review, vol 27, no. 2, pp 46-54.

Connell, R.W. (1987) "The university in wester Sydney: questions of design", *Australian Universities' Review,* vol 30, no 2 , pp 16-18

Evans, T. (1989) "Fiddling while the tome turns: reflections of a distance education development consultant" in Parer. M, (ed.) *Development, Design, and Distance Education,* Churchill, Centre for Distance Learning, pp 117-126.

Evans, T. and Nation, D. (1987) "Which future for distance education" *International Council of Distance Education Bulletin,* 14, pp 48-53.

Evans, T. and Nation, D (1989a) *Critical Reflections on Distance Education,* The Falmer Press, Lewes.

Evans, T. and Nation, D. (1986b) "Dialogue in practice, research and theory in distance education", *Open Learning,* vol 4, no. 2, pp 37-42.

Harris, D. (1987) *Openness and Closure in Distance Education,* The Falmer Press, Lewes.

Jevons, F.R. (1986) "The grip of print", mimeo, Deakin University, Geelong.

Juler, P. (1990) "Promoting interaction; maintaining independence: swallowing the mixture", *Open Learning,* vol 5, no 2, pp 24-33

Moodie, G.F. & Acopian, J. (1989) "New instrumentalism, in higher education: another axe being ground" *Australian Universities' Review,* vol 31, no 1, pp 60 - 5.

Nation, D. (1990a) "Teaching towards independent learning" mimeo, Monash University, Churchill.

Nation, D. (1990b) "The blue yonder beyond weekend schools" (manuscript).

White Paper (1988) *Higher education: a policy statement,* AGPS, Canberra.

DISTANCE EDUCATION FOR HEALTH SERVICE MANAGERS - A STRATEGIC REVIEW OF INITIATIVES IN AUSTRALIA

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Distance education for health service managers in Australia has undergone noticeable change over the past two years. Firstly, reactive changes have occurred including the re-allocation of resources formerly given to undergraduate distance education programs, the shelving of teaching resources which utilise the distance education mode and the consolidation of resources around postgraduate study. These changes have resulted from the centralisation of distance education production and distribution facilities within Distance Education Centres and the breakdown of the binary system of funding within the tertiary education sector.

Secondly, innovative, proactive, change now have occurred. For example, students who undertake continuing education courses can now gain advanced standing when they enrol at a university. Such changes have arisen as a consequence of professional bodies, universities and Regional Offices of the NSW Department of Health developing continuing education (non-award) programs to meet the identified needs of health service managers.

Award Programs

Centralisation of production and distribution facilities.

Potential benefits associated with the approval of eight Distance Education Centres were closely linked to the concept of economies of scale. Distance Education Centres recommended by the Department of Employment, Education and Training included:

- Darling Downs Institute of Advanced Education;
- Capricornia Institute of Advanced Education;
- Deakin University (incorporating Warrnambool Institute);
- University of New England (incorporating Armidale College of Advanced Education);
- Charles Sturt University (incorporating Mitchell College of Advanced Education, Riverina-Murray Institute of Higher Education);
- South Australian College of Advanced Education; and
- Curtin University/Murdoch University/Western Australia College of Advanced Education (ASPESA News, 1989a, p. 10).

Linking the nomination of eight Distance Education Centres with economies of scale can now be questioned in the light of changes that have taken place since the allocation of Distance Education Centre status. Questions can be raised in terms of expected process benefits, as well as in terms of expected content benefits.

Process benefits - economies of scale

Arrangements associated with accessing distance education programs and/or channelling distance education programs through a Distance Education Centre do not appear to be clear cut. It would seem that, in the first instance, institutions which may wish to allocate some part of their student quota to external students need to contact the holders of the copyright of appropriate distance education materials. Following preliminary negotiations between these parties the Distance Education Centre itself would become involved.

It must be remembered, however, that availability of suitable programs at an acceptable price are not the only matters to be taken into account if an institution is considering offering programs in the external mode. Purchasing institutions also need to consider if they have the assignment submission/return and library infrastructures to be able to maintain external students. The commitment of staff to an external mode of teaching is also of crucial importance. Residential facilities and/or specialised teaching technologies (for example, teleconference provisions) may be required to supplement distance education materials which use print, audio and video production techniques.

In 1990, within Australia, distance education programs for health service managers are being provided by the following Distance Education Centres:

- Monash University/Gippsland Institute of Advanced Education (Graduate Diploma in Business (Management));
- University of New England (incorporating Armidale College of Advanced Education) (Graduate Diploma in Nursing Studies (Administration); Bachelor of Administration (Nursing));
- Charles Sturt University (incorporating Mitchell College of Advanced Education, Riverina-Murray Institute of Higher Education) (Graduate Diploma in Health Service Management; Bachelor of Health Science (Management)).

The nature of the changes that have come about as the result of the concentration of production and distribution facilities within Distance Education Centres can be seen by examining changes in the field of distance education for health service managers.

Whilst Queensland University of Technology did offer a Bachelor of Business (Health Administration) both internally and externally, it has now withdrawn from the external mode of operation. Queensland University of Technology offered to let University College of Central Queensland (formerly the Capricornia Institute of Advanced Education) take over the program but Queensland University of Technology did not wish to simultaneously surrender any student quota to accompany the program. Because the University College of Central Queensland didn't have any "spare" student quota, the offer was not taken up.

The University of New South Wales has withdrawn from offering the Bachelor of Health Administration in distance education mode. Negotiations are currently taking place between the University of New South Wales and Charles Sturt University - Mitchell concerning this change. It is proposed that Charles Sturt University - Mitchell will pick up the remaining University of New South Wales' students who have yet to finish their Bachelor's degrees, at a yet-to-be-decided-upon cost to the University of New South Wales.

An interesting undercurrent of opinion expressing dissatisfaction with the monopolistic role of Distance Education Centres, has been gaining currency amongst providers in the field of distance education for health service managers. Associated with this opinion is rumour of the intention of some providers to continue offering distance education programs in the absence of Distance Education Centre status. Indeed, the University of New South Wales is continuing to offer postgraduate programs in the external mode even though it is not a designated Distance Education Centre.

In considering the two scenarios involving firstly, Queensland University of

Technology and, secondly, the University of New South Wales, it can be seen that in the field of distance education for health service managers the identification of dedicated Distance Education Centres has resulted in two former providers of undergraduate programs leaving the field. It is of importance to note that rather than the resources being pooled, the courses these providers have previously been offering appear to have been relegated to the back shelf. Contrary to the 'expectation hype' that surrounded the development of Distance Education Centres, the courses have not continued to be offered using a Distance Education Centre, nor have they been picked up by alternative providers to be incorporated into established programs and/or to be further developed. Must it be concluded that the courses were of inadequate standard to meet market requirements and thereby were not offered in distance education mode, or can it be suggested that the difficulties associated with breaking through the bureaucratic armour of a Distance Education Centre did not warrant the effort?

Content benefits - economies of scale

Ross (1989, p. 1) has found that many people involved in distance education have been interested in developing distance education programs that are 'open' as to people, as to places, as to methods and as to ideas. Rather than looking for ways to continue and improve existing practice, Ross (1990, pp 8-9) is looking for possibilities to change our present models. Ross has argued however, that in Australia endeavours to develop distance education programs that are 'open' seem to be in conflict with the Federal Government's desires for rationalisation and concentration of distance education providers.

> *"The section in the Government's Higher Education Policy document (the "White Paper") is almost explicitly based on the "Industrial production" model of Distance Education, a model that those distance educators interested in open education are attempting to move away from as they increasingly find it difficult to foster student autonomy within its procedures (Ross 1989, p. i)."*

The question posed by Ross' is whether the new concentration of resources within Distance Education Centres will merely improve the quality of materials as assessed by the industrial production model, or alternatively, give educators the chance to use pooled resources in order to promote open learning through distance education (Ross, 1989, p. 4-5).

As if in answer to Ross' question there is a growing body of opinion amongst distance education providers for health service managers that the editorial and production staff working within Distance Education Centres are spending the greater part of their time on income generating projects rather than on developing new models of distance education. In addition, the level of innovation and individuality associated with comparatively routine award program materials is relatively low compared to what it was in the recent past. The apparent increasing priority of income generating projects is associated with greater emphasis being given in recent times to the desirability of specific centres within universities being self-financing.

This apparent change in priorities within Distance Education Centres lends support to the assertion that the new concentration of resources in Distance Education Centres will merely improve the quality of materials as assessed by the industrial production model.

In the field of distance education for health service managers the centralisation of production and distribution facilities does not appear to have facilitated, through economies of scale, either the sharing of common packages of materials between more than one provider (process benefits associated with economies of scale) or the production and development of distance education packages using new or different models of distance education (content benefits associated with economies of scale). Instead, rather than work through Distance Education Centres with which they have no established links, providers are re-allocating resources formerly given to undergraduate, distance education programs, and shelving teaching resources which utilise the distance education mode.

Breakdown of the binary system

At the same time as specific organisations have been nominated as Distance Education Centres there has also been the theoretical breaking down of the binary system of funding within the tertiary education sector. This process is associated with the creation of multi-campus universities in order to refocus the former advanced education sector. There is no longer any formal demarcation between the roles of older universities and former colleges of advanced education.

Many former colleges of advanced education are taking the opportunity to offer postgraduate programs particularly at the level of masters degree, to increase their share of the postgraduate market. This trend is having an effect in the health administration field of education. For example, the University of New England, Armidale (formerly Armidale College of Advanced Education) is advertising the following external study programs for commencement in 1991:

- Master of Health management by course work;
- Master of Health Management (Honours) by research and thesis;
- Doctor of Philosophy in nursing, health and health management.

In the meantime the older universities are taking the opportunity to use resources previously allocated to undergraduate study to consolidate postgraduate areas of study. For example, the University of New South Wales is reallocating resources previously associated with offering the Bachelor of Health Administration in distance education mode towards postgraduate study.

In the field of distance education for health service managers the breakdown of the binary system of funding within the tertiary education sector has resulted in, firstly, the reallocation of relatively scarce resources within the former advanced education sector into postgraduate studies and, secondly, the reallocation and consolidation of resources around postgraduate study within the older universities.

Continuing Education Programs

Recent initiatives in Australia in the field of distance education for health service managers have been associated with the provision of continuing education (non-award) programs by professional bodies (including the NSW College of Nursing), universities (for example the University of New South Wales) and regional offices of the NSW Department of Health. The nature of these initiatives is outlined below.

Professional bodies - initiatives in continuing education

Within the Australian College of Health Service Executives (NSW Branch) ongoing discussion is focussing on the potential market amongst health service managers for continuing education programs using the distance education mode, to facilitate professional upgrading (Smith, 1989). The financial ramifications of trying to enter such a market are uppermost in the minds of members of the College, educators and practitioners alike:

> *"... the possibility of the Commonwealth seeing Adult and Continuing Education as more "economically rational" than current methods of education could influence resource allocations in Adult and Continuing Education favour leading to an expansion and favourable consideration of Adult and Continuing Education proposals and implementations (Grant in Smith, 1989, p. 1)."*

While no formal decision has yet been taken by the Australian College of Health Service Executives (NSW Branch) to provide continuing education programs using the distance education mode it has been noted that mechanisms already exist within universities to facilitate the enrolment of students in units of study offered in the external mode. The use of mechanisms already available could enable the Australian College of Health Service Executives (NSW Branch) to facilitate the provision of continuing education (non-award) programs to health service managers.

Two mechanisms exist at Charles Sturt University - Mitchell which could be of relevance to the Australian College of Health Service Executives (NSW Branch). The first mechanism involves the Associate Student Program which is available to graduates needing to undertake a limited number of additional undergraduate units. The additional units may be necessary to complete a major in order to meet the requirements for accreditation to a professional body or to meet the requirements necessary for admission into a postgraduate award (Beauchamp, 1990, p. 1). Students admitted into the Associate Student Program must meet all the requirements for assessment for each unit in which they are enrolled, including attendance at compulsory residential schools. Students are charged a fee to participate in the Associate Student Program (Beauchamp, 1990, p. 2).

The second mechanism which exists at Charles Sturt University - Mitchell to facilitate enrolment of students in units of study is the Professional Upgrade Program. This program is offered by distance education to graduates or holders of qualifications deemed to be equivalent to graduate status who wish to undertake a limited number of additional units in order to satisfy the academic requirements of a particular professional organisation (Charles Sturt University - Mitchell 1990, p. 1).

Participating professional organisations include the Australian Society of Accountants and the Australian Association of Taxation and Management Accountants (Charles Sturt University - Mitchell 1990, p. 4). Professional Upgrade Students are not required to attend residential schools. The fee charged for each unit is higher than that charged under the Associate Student Program (Charles Sturt University - Mitchell 1990, p. 2).

The availability of mechanisms at Charles Sturt University - Mitchell for enrolling students in individual units of study is compatible with the ideas currently being discussed by the Australian College of Health Service Executives (NSW Branch) concerning the need for continuing education programs using the distance education mode, to facilitate professional upgrading.

The Continuing Education Department of the NSW College of Nursing, in order to meet the continuing education needs of its members, is already offering the following programs using the distance education mode:

- Introductory Research;
- Cardiac Nursing; and
- An Introduction to Quality Assurance for Nurses.

The provision of such programs is in accordance with goals expressed in the document entitled Nursing Education Targets 1989-2000:

"...it is essential that, especially in relation to the development of specialised knowledge and skill, there is an organised and continuous system of ongoing nurse education for (a) meeting workforce demands, (b) maintaining professional standards, and (c) ensuring staff retention and job satisfaction (Royal College of Nursing, Australia; et al 1989, p. 4)."

Universities - initiatives in continuing education

The International Professional and Continuing Education (IPACE) Institute within the University of New South Wales has developed a series of self-study packages designed to meet the on-going needs of health professionals. Each package consists of a set of audio-tapes and study notes. Some packages also include a video tape. These packages enable self-paced study of relevant and practical material.

Packages on the following topics are being offered:

- Dealing with Dementia;
- Counselling the Elderly;
- Bereavement Counselling;
- Developing Effective Teams;
- Planning Wards for Better Patient Care;
- Successful Ward Management;
- Industrial Relations for Nurses; and
- Protecting Life and Limb - Medical Issues in Occupational Health and Safety.

Regional Offices of the NSW Department of Health - initiatives in continuing education

The Graduate Transition Program was developed in late 1987-88 as a co-operative venture between the Central West Regional Office of the NSW Department of Health and the then Mitchell College of Advanced Education (now Charles Sturt University - Mitchell). It was an innovative program that adapted distance education strategies and used a preceptorship model to provide a structured orientation program for new nurse graduates. A full report of the initiative can be found in the work of Hart (1989). Although the program is still being developed and implemented it suggests a valuable model for the provision of short term skill development using distance education (Hart, 1989, p. 8).

The NSW Department of Health, North Coast, and the University of New England, Northern Rivers (formerly the Northern Rivers College of Advanced Education), have recently combined to establish the Centre for Professional Development in Health Sciences at Lismore. The Centre's first operational year is 1990. Two types of courses are on offer:

- those conducted by the Department of Health as part of its Staff Development Program; and

- those which don't involve classroom instruction which, often, will be the same as those undertaken by students at the University (Centre for Professional Development in Health Sciences 1990, p. 1).

Courses currently on offer include:

- Nursing Theories;
- Nursing Research;
- Primary Health Care - components and concepts;
- Introduction to Statistics and Computing; and
- Sociology of Health 1, 2, 3.

The Centre for Professional Development in Health Sciences aims to give individual health service professionals an opportunity to upgrade their qualifications and to make their study programs relevant to their professional aspirations (Centre for Professional Development in Health Sciences 1990, p. 2).

If a student is enrolled at the University, the fees paid entitle the student to access the Centre's courses at no charge. The Centre's courses are undertaken as part of the student's overall study program. If a student is not enrolled at the University a fee is charged varying from $80 to $150 per course. The student receives a formal statement indicating successful completion of each course and its equivalent value in the Bachelor in Health Sciences (Nursing) degree program. The student can then gain advanced standing for this study when she/he enrols with the University at some future time (Centre for Professional Development in Health Sciences 1990, pp. 2-3).

The facility to enable students who undertake continuing education courses to subsequently gain advanced standing when they enrol at the University is an innovation in the Australian tertiary education setting, though such schemes do exist in the United Kingdom. For a more complete survey of such initiatives in the United Kingdom see Short (1990). Needless to say this facility has been sought by professional bodies in nursing:

> *"... the levels and standard of non-award nurse education must be valued by, and be able to provide ongoing benefits to, the community as well as the individual nurse and the profession; for example, cost effectiveness in terms of transfer of credits to formal award programs conducted in the higher education sector (Royal College of Nursing, Australia; et al, 1989, p. 4."*

The provision of continuing education (non-award) programs by professional bodies (including the NSW College of Nursing), universities (for example the University of New South Wales) and Regional Offices of the NSW Department of Health (particularly in the Central West and the North Coast) has been characteristically innovative in an attempt to successfully provide for the needs of health service managers using the distance education mode.

Conclusion

In the field of distance education for health service managers the centralisation of production and distribution facilities does not appear to have facilitated, through economies of scale, either the sharing of common packages of materials between more than one provider (process benefits associated with economies of scale) or the production and development of distance education packages using new or different models of distance education (content benefits associated with economies of scale). Rather than work through Distance Education Centres with which they have no established links, former distance education providers are re-allocating resources formerly given to undergraduate, distance education programs and shelving teaching resources which utilise the distance education mode.

In the field of distance education for health service managers the breakdown of the binary system of funding within the tertiary education sector has resulted in, firstly, the reallocation of relatively scarce resources within the former advanced education sector into postgraduate studies and, secondly, the reallocation and consolidation of resources around postgraduate study within the older universities.

Recent initiatives in Australia in the field of distance education for health service managers have been associated with the provision of continuing education (non-award) programs by professional bodies (including the NSW College of Nursing), universities (for example the University of New South Wales) and Regional Offices of the NSW Department of Health. Perhaps the most exciting aspect of these innovations is the co-operation between particular tertiary education providers. Such co-operation facilitates the accreditation of Staff Development Programs to a nominated degree program.

References

ASPESA News (1989a), "View from the quarterdeck", vol. 16, no. 2, August, pp. 10-11.

ASPESA News (1989b), "View from the quarterdeck", vol. 17, no. 3, December, p. 12.

Beauchamp, L. (1990), Associate Student Program, Charles Sturt University - Mitchell, Bathurst.

Centre for Professional Development in Health Sciences (1990), "Introducing the Centre for Professional Development in Health Sciences", CPD, Lismore.

Charles Sturt University - Mitchell (1990), Professional Upgrade Program, Charles Sturt University - Mitchell, Bathurst.

Hart, G. (1989), "Distance education: skill development for the health care industry", Australia and South Pacific External Studies Association, 9th Biennial Forum, Distance Education for Training in Business and Industry, Gippsland Institute of Advanced Education, 10-14 July.

Ross, B. (1989), "Distance Education Centres and open education: conflicts - opportunities?", Australia and South Pacific External Studies Association, 9th Biennial Forum, Distance Education for Training in Business and Industry, Gippsland Institute of Advanced Education, 10-14 July.

Ross, B. (1990), "Where should distance education be headed and can DECs take us there?", ASPESA News, vol. 17, no. 1, March, pp. 8-9.

Royal College of Nursing, Australia; Australian Nursing Federation; Florence Nightingale Committee, Australia; and New South Wales College of Nursing (1989), Nursing Education Targets 1989-2000, RCN Australia, Melbourne.

Short, Jennifer (1990), "Current UK initiatives: Management education within the National Health Service", in Australian College of Health Service Executives NSW Branch, Strategic Human Resource Planning and Career Development, *Occasional Papers*, no. 1, ACHSE (NSW Branch), Hornsby, pp. 35-43.

Smith, H. (1989), "Alternative entry and advancement options for College Membership by Short Courses, Professional Upgrading and Bridging Courses." Discuccion paper presented to the NSW College of Health Service Administrators, Sydney, 10 March.

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DISTANCE EDUCATION: Access, Equity and Participation and/or Efficiency and Effectiveness

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The current relationship between issues of access to, and issues of efficiency in Australian higher education is considered. These considerations indicate how a conjunction of separate transformations may subvert the original well-intentioned effort of certain distance educators whose concern was to broaden access. As a consequence it is suggested that the successful preservation and regeneration of University education may become more rather than less difficult.

Perhaps I am mistaken but currently I am of the opinion that if we as members of a professional association such as ASPESA do not reflect carefully upon our actions we may find, however unwittingly, that we have played a part in denying rather than increasing access to what for the moment I shall call a University education.

At the 1983 ASPESA forum I presented a paper which directed critical attention towards the notion of efficiency which had been used as a core concept in that forum's theme. It is worth saying that whoever selected that forum theme should be congratulated for remarkable foresight for in the intervening period the spectre of the Review of Efficiency and Effectiveness in Higher Education has never been far out of sight in Australian higher education. This year the notions of Access, Equity and Participation have been selected to occupy our attention, however, for good or ill I anticipate that the concepts of Efficiency and Effectiveness will remain in close attendance. Consequently it is crucial that we give some thought to the possible relationships between these sets of concepts, for example are they complementary or mutually exclusive? Does a shift of attention to issues of access, in a context of financial constraint, add weight to the call for efficiency and effectiveness whilst deflecting attention from a consideration of the specific criteria of efficiency and effectiveness which are in use?

In a period of general economic constraint, and more particularly of the so called 'fiscal crisis of the state' preceded by a decade and a half or thereabouts of growth in publicly funded higher education, it seems unlikely that increased access to higher education will be a product of an increasing proportion of GNP being directed by the state towards higher education. Debates about efficiency replace debates about expanison (Hudson replaces Karmel). In such circumstances a call to reflect upon the notion of access with regard to equity in the light of known participation rates is one side of a coin which when flipped over reveals all too clearly the seemingly ever present issues of efficiency and effectiveness.

Furthermore, if the period of growth in higher education referred to above could also be correlated with an unprecedented level of societal critique, then we can understand why governments committed to 'consensus politics' might also be more readily swayed by measures which increasingly restrict or deny access to those particular segments of higher education most closely associated with societal critique.

Already the 'economic realists' amongst us will be tempted to turn to something more practical but perhaps before they go they could spare the time to read the following from Michael Apple:-

> *The fact that educators today seem to see the only "real" choices as being between the traditions of technological thought or efficiency and humanism speaks less to the importance of the choice than it does to our utter inability to preserve viable alternative social and educational traditions. There is no serious attempt in the media, in schools, in teacher-training institutions, or*

> *in society's cultural apparatus in general to document the long and valuable history of what might be called socialist humanism in the United States. Since this tradition is simply not preserved or readily available to both the populace at large or to professional educators, it is nearly impossible for committed individuals to affiliate with it. One has no choice but to choose between a concern for inputs and outputs or a value romantic individualism. Thus, a perspective that offers a uniquely potent mode of analysis and an agenda for coordinated action in the economic, political, and educational sectors of a society, one that may enable us to see where ameliorative changes are realistically possible and where more major structural alterations in our institutions are necessary, cannot be turned to.*[1]*(my emphasis).*

In essence that which Apple speaks of is simply a replication in the education sphere of the apparent retreat of a viable political alternative in the general socio-political arena, and of course this might not be entirely unrelated to a shifting subject emphasis intimated earlier for many involved in studying in institutions of higher education.

But why should any of this be of particular interest to us? Haven't we in distance education more manageable questions to address? Perhaps, but what if it became evident that distance education methods have blunted the critical and innovative edge that could appear in undergraduate work in less regimented conditions?

Consider the following extract from a stimulating but I find confused paper by Frank Musgrove entitled 'The Domesticated University':-

> *I think the non domesticated university curriculum has to be thought of as a game or sport (actually, blood sports): in fact traditional curricula and teaching methods make sense in no other terms. The implications of what I am saying for university teaching methods are I think quite considerable: perhaps even an inversion of contemporary orthodoxies.*
>
> *These are the pressures of our day which lead to domestication: to a curriculum which is boiled and not roast: more direct forms of accountability and a consciousness dominated by the arithmetic of staff: student ratios; curriculum construction which is concerned above all to prevent waste - which emphasizes 'covering the ground' and uses the vocabulary of control engineering; monitoring and programming, even feedback loops; guidance systems which enfold students to protect their progress and prevent 'wastage', more (apparently) job-related degree courses; and other degree courses which foster a pre-occupied and indulgent self- concern.*[2]

Musgrove's remarks seem very apposite with regard to the current conceptual boundaries of debate about higher education. That which he refers to as roast is no longer on the menu, and that can help us towards a key distinction which can be rephrased in the terms of this paper as follows. Increased participation in conjunction with a number of supply side features results in a transformation of the educational product and in effect of the producer (from craft to process worker). The issue of access referred to in the opening paragraph of this paper comes down to taking sides upon whether this transformation amounts to a difference in kind, in which case access to the original becomes ever more restricted, or a difference in degree, in which case access is broadened though the product may be different in certain superficial respects.

To hear the same point made reference to in a different manner we are reminded by Encel of Veblen's remarks in the first quarter of the century when he argued that:-

> *American universities ... were run by a barbarous utilitarianism which had turned Plato on his head. Instead of philosophers taking over the management of affairs, men of affairs had taken over the direction of the pursuit of knowledge. Utilitarian pressure had encouraged the notion of a university as 'a business house dealing in merchantable knowledge, placed under the government of a captain of erudition, whose office it is to turn the means in and to account in the largest feasible output'.*[3]

Similarly Callahan refers us to Robert Lynd's work:-

> *"The 1920's wrote eminent sociologist Robert Lynd, "were years of educational 'efficiency' in American public education and of yardstick making by which to measure this efficiency.... "—He reported that research departments had been established which used the yardsticks and which "Issued impressive printed bulletins of comparative charts and tables on How Much Do Our Schools Cost the Taxpayer?'"*[4]

It would certainly seem that many of the Commonwealth Tertiary Education Commission recommendations in the Review of Effectiveness and Efficiency are oriented towards similar ends, all devised one presumes, to try to satisfy that insatiable lust for reassurances from other that flows from a lack of trust.

Where earlier we made reference to the notion of fiscal crisis here we make reference to the notion of legitimation crisis. Confidence in the efficiency of the system of higher education wasn't in question when that system was relatively small and hence relatively cheap, and was oriented towards inculcating the non-cognitive value orientations required of the children of the elite who were destined to become the future elite. However, as higher education enters the much wider mass market and employment opportunities even for the successful are no longer assured, questioning of the legitimacy of the institutions increases. Of course to those who control the purse this faltering of confidence in the institutions can be quite timely for it can manifest itself in reduced demand and hence an apparent reduction in the need for funding, and more directly, by providing a climate in which structural changes can be induced. The notion of trust is, of course, quite crucial in debates about professions and perhaps the lack of trust in academic institutions intimated by the data collection and collation processes recommended in the Efficiency and Effectiveness Review is itself illustrative of a proletarianization process which occurs as crafts are fragmented and work processes reconceptualized and recombined.

As Michael Apple points out:-

> *With the large-scale influx of prepackaged material, planning is separated from execution. The planning is done at the level of the production of both the rules for use of the material and the material itself. The execution is carried out by the teacher. In the process, what were previously considered valuable skills slowly atrophy because they are less often required ... While the deskilling involves the loss of craft, the ongoing atrophication of educational skills, the reskilling involves the substitution of the skills and ideological visions of management. The growth of behavior modification techniques and classroom management ....*[5]

In a paper presented at last year's Education Technology conference in Perth I argued that...

> *The shift from a discipline-based to a process-based division of labour currently occurring within areas such as distance education is likely to be of far more general application.*
>
> *So on an intra-institutional level, the separation of course preparation from course administration and of both from tutoring and assessing, can lead to a division of labour which in Durkheimian terms produces a requirement for organic rather than mechanical solidarity. Furthermore, on an interinstitutional level, the increasing division between research, teaching and administrative functions which is exemplified in the shift towards centres of excellence in research being created in institutions A and B whilst institutions C and D are recognized as, for example, general providers of distance education, and whilst new national committees are set up to co-ordinate and administer these more complex divisions of institutional roles, are all indicative of structural changes...*[6]

Interestingly the specific type of reskilling Apple refers to suggests that we may be grossly over simplifying by referring to this process as proletarianization, for the reskilling into management missions and skills provides a hint of the relocation of the issue into the various significant ideological debates about the new middle class which we will refer to briefly at the end of this paper.

If any readers find this relocation of educational issues in the sphere of political debate questionable the following conviction expressed in the Review of Efficiency and Effectiveness might be instructive:-

> *By making institutions and their staff the agents of reform, standards can be increased and morale improved. The Committee is convinced that this approach is more conducive to high levels of efficiency and effectiveness than greater outside direction or influence through increased bureaucratic control or the free reign of market forces.*[7]

It seems that more "professional" academics will lead us past the twin evils of our time - bureaucratic totalitarianism on the one side and capitalist anarchy on the other!! Hardly an apolitical matter. In fact I am reminded of Karl Mannheim's seemingly naive version of the place of the unattached intellectuals. The CTEC allows Plato's philosophers to return by the backdoor once they've imbibed the efficiency and effectiveness brew. But back to more mundane matters. Clearly the review is placing a not inconsiderable responsibility on the shoulders of academics and their professional associations.

However, it must be said to be something of a moot point whether in sum the recommendations of that report facilitate or hinder those academics who choose to act responsibly in the manner the report commends. In essence most of the proposals would appear to reduce institutional and individual academic autonomy in favour of more centralized and bureaucratic control. It could be heard as a manifesto for educational administrators at the centre. However, the authors do go on to make our task appear less onerous for they argue that "A parallel commitment is also required on the part of government and the whole community"[8]. Sounds reasonable, until we remember that their report has only become necessary because government and the community no longer trust the profession in question! Consequently, far from making our task as members of a professional association less awesome, they remind us that it is more so, for the very measures they commend, though necessary, are not sufficient conditions for the maintenance and improvement of our system of higher education. Without governmental and community support little can be achieved.

The images of bureacuracy on one side and capitalism on the other resonate to some degree with the notions of equity and fairness on one side and efficiency and economy on the other, and can help us to refocus our attention. Daniel and Stroud, perhaps unknowingly point succinctly to the dilemma for distance educators when they state that for the U.K.O.U.:-

> *Two particularly important goals were to serve the educationally and economically underprivileged and to reduce the costs of undergraduate education.*[9]

In a period of economic expanison and optimism about the economic growth factor attributed to increased access to higher education there was no reason to treat the former goal as solely dependent upon the latter.

However, the overall economic climate has changed and over recent years the latter rather than the former goal seems to have persuaded numerous governments that distance education merits continuing if not increased support. In fact interestingly, the Review of Efficiency and Effectiveness argues that:-

> *It (distance education) is less suitable for the disadvantaged student particularly where remedial work is necessary*[10]

Given a version of distance education as more economical/cheaper than on-campus education, this very likely holds true. However, we need to be clear that though one version of distance education is less suitable that need not hold true for distance education per se.

The view expressed by the CTEC report on Efficiency and Effectiveness is worthy of note however for it represents a significant change in orientation. Such a view conflicts with that attributed to the 1985-87 triennium CTEC Report by Malcolm Crick when he argues that

> *that Report, in emphasizing greater equity and greater participation for the disabled, Aborigines, women, ethnic communities, people in the outer suburbs etc., sees external studies as ideally suited to cater to this demand.*[11]

Whilst this may be more of an apparent than a real contradiction, for it might dissolve if the more specific types of disadvantages are specified, I think it does represent a shift away from an equity/access based justification for distance education and opens the way for an economic justification.

If this is occurring then Crick may well be proved correct when he argues that distance education "will increasingly become the main and central form of teaching and learning at the University level".[12] However, whilst Crick is commending this process I am commending caution for I am far from convinced that in the University sector 'boiled' is better than 'roast'.

A significant statement from Crick's argument is as follows:-

> *Rather than feeling second-class citizens in the university world, one might well, with Deakin's Vice-Chancellor, invite conventional universities to see how much they could improve their teaching by seeing what has developed in the external studies field over the past few years. This is not just in a*

> *technical sense either, for at the broadest level of educational philosophy, external studies could well be said to be leading the field. For many years the value of lectures has been doubted. External studies is essentially the provision of resources for learning. Much of the learning is self-paced and is self-instructional. There is much reason to think, given the heterogeneity of the student population nowadays, that the provision of a professionally produced learning package may well be the educational system of the future and that in the year 2000 the conventional on-campus student sitting in a lecture room may be a rare bird indeed. As Moran and Charlesworth put it 'distance education is not just a minor and ancillary mode of University education (a "poor relation" of traditional on-campus education): rather,all the signs are that, in the next twenty years, it will increasingly become the main and central form of teaching and learning at the University level.*[13]

Plenty of work for the members of APESA if Crick's view of the future comes into being. But would we be discharging our professional responsibilities adequately if we played a part in transforming Universities such that the pessimism expressed in the following statement by J.P. Powell was proved justified:-

> *It is impossible to predict the future development of complex organizations such as universities. An optimistic interpretation .... would point to them becoming far more active in their role of social critic as the constraints of vocationalism are loosened and the world of ideas comes to be appreciated or its intrinsic value as well as for the contribution it can make to the amelioration of social ills. On the other hand, a more pessimistic view might see the conformism that is so prominent a feature of the wider society extending its reach even deeper into the universities and reducing their capacity to mount well-informed and sustained critiques of received opinions and policies. In the current situation, realism and optimism cannot comfortably share the same bed.*[14]

Clearly I am suggesting, albeit untidily, that we have a profound professional responsibility in this historical epoch to ensure that the special responsibilities of the Universities are encouraged to flourish rather than atrophy. We need to ensure, as Gallbraith says, that

> *Colleges and Universities can strongly assert the values and goals of educated men - those that serve not the production of goods and associated planning but the intellectual and artistic development of man.*[15]

To quote from Powell's article once again,

> *It does, however, suggest that insofar as universities are committed to the pursuit of truth across the whole domain of human knowledge then more than any other institution that we have created they are likely to offer a congenial setting for those who favour open and informed discussion of contentious social and political issues. An environment in which scholarship flourishes is also apt to encourage the formulation and expression of ideas, opinions and policies which reach beyond the professional concerns of scholars. If we value well-informed and freely-expressed social criticism then we should seek to safeguard the independence of universities as centres for the generation of this form of critical thought however discomforting its results may be for sectional interests within the community.*[16]

It is crucial that we notice that Universities are contrived/constructed i.e. in Powell's terms we have created them, for similarly, we will in part be responsible for their destruction if that occurs as a result of specific teaching processes developed in distance education. Max Weber reminded us in his work on the origins of Capitalism of the ironic unintended consequences of Calvinism. In essence, what I am arguing here, is that the original well-intentioned efforts of specific distance educators to improve and expand access to the University sector may generate a process with the opposite results.

The notion of access however, can itself be enlivened somewhat, by Beasley's remark that

> *An educational institution, or indeed an educational system, will have failed at least to some extent if the intellectual capacity, the imagination and the technical, artistic and critical abilities of members of its community remain untapped and undeveloped.*[17]

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* We are reminded by Beasley's remark of the seven headings drawn from Cameron and Whitten[18] which might help to stimulate rather than stifle debate about differing criteria of effectiveness and efficiency.

(1) From whose perspective is effectiveness being judged?
(2) On what domain of activity is the judgement focused?
(3) What level of analysis is being used?
(4) What is the purpose for judging effectiveness?
(5) What time frame is being employed?
(6) What type of data are being used for judgements of effectiveness?
(7) What is the reference against which effectiveness is judged?

This suggests that Beasley is far from generous in awarding gold stars or even passes, but he does remind us that institutional effectiveness, in this instance on an access-related criterion, can be attended to on many different planes.*

What of equity? Russell D. Finke reminds us in a very concise fashion how this notion has allowed us to be taken in by a conceptual somersault.

> *The notion of equity then is dependent on both circumstance and community values, and in terms of educational participation implicitly defines the limits or tolerance of acceptable inequality as interpreted by particular individuals and groups with different expectations, different attitudes, values and beliefs, and different perceptions of the social, political and economic context in which they are placed. It cannot therefore be accepted as an inherent component of empirical participation trends, however disparate these may appear for otherwise equivalent community groups, but rather forms part of a subsequent judgement about the acceptability of such trends in relation to existing preconceptions and policies and the need to influence their future directions.*[19]

What of participation? Not a particularly stimulating concept but at least it can help remind us how far we have slipped back from a period when participation denoted at least apparent influence e.g. worker participation, student participation. In its current conceptual context it has a far more limited reference e.g. participation rates for different sectors of the population. Participation in the form of enrolment is bought at a cost, i.e. by replacing the possibility of participation in, for example, curriculum construction with prepackaged and hence less flexible but cheaper materials. Even very ordinary issues of the kind just mentioned in relation to Access, Equity and Participation would of course be far less likely to surface in a system in which critical thought was no longer nurtured.

Hugh Hudson makes reference at the end of his ANU paper of November 1986[20] to a number of what he terms 'lousy decisions'. Perhaps this paper can help us to remember that his list doesn't exhaust the possibilities.

How though can ASPESA as a professional association help to preserve and regenerate a system of higher education in which critical thought is nurtured? My contention is that unless we can begin to formulate proposals in response to questions of this kind we cannot claim to be taking the Review of Efficiency and Effectiveness in Higher Education seriously when it states that

> *The Committee is thus emphasizing the professional responsibility of academic staff as being fundamental to the successful maintenance and development of our higher education system.*[21]

In my paper to the 1983 Forum I stressed the importance of understanding the professionalization process within and of distance education. I remain convinced of the importance of that line of research. The issue at hand is one instance of the debate about the 'new middle class' and in effect about post-capitalism i.e. are distance educators, amongst other professions, allied with capital, with labour, or do they have a role independent of those power blocks.

Similarly, the CTEC and the reports it generates such as the Efficiency and Effectiveness Review, need to be analyzed from a framework which gives due attention to general structural issues. We need to consider macro-effectiveness as well as micro-effectiveness issues. As Peter Scott says:-

> *More is at stake than the institutional self-interest of higher education. Also threatened may be that configuration of belief and practice typical of modern society and that metaphor of a moral social order that is a guarantee of both freedom and program.*[22]

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References

1. Apple, Michael, W., "Humanism and the Politics of Educational Argumentation", in Willer, Richard, H., *Humanistic Education*, A Phi Delta Kappa Publication, 1977, pp.317.
2. Musgrove, Frank, "The Domesticated University", *New Universities Quarterly*, Summer 1978, pp. 406/407.
3. Encel, S., "The Social Role of Higher Education", in Wheelwright, E. L., *Higher Education in Australia*, F. W. Cheshire, 1965, pp. 3.
4. Callahan, Raymond, E., *Education and the Cult of Efficiency*, University of Chicago Press, 1962, pp.221.
5. Apple, Michael, W., *Education and Power*, Routledge and Kegan Paul, 1982, pp. 146.

6. Campion, M. G., "Technophilia and Technophobia", Unpublished paper presented at the International Educational Technology Conference, December 1986, Perth, Western Australia, pp. 31.

7. C.T.E.C., "Review of Efficiency and Effectiveness in Higher Education", Australian Government Publishing Service, 1986, pp. 18.

8. Ibid., pp. 18

9. Daniel, J. S., and Stroud, M. A., "Distance Education: A Reassessment for the 1980's", *Distance Education*, 2,2, pp. 149.

10. C.T.E.C. "Review of Efficiency and Effectiveness" in *Higher Education*, op. cit., pp.222.

11. Crick, Malcolm, "The Rationalisation of Off Campus Studies in Australia: Implications for FAUSA", *Vestes*, the Australian Universities' Review, Vol 27, No. 2., 1984 pp. 33.

12. Ibid, pp. 33

13. Ibid, pp. 33

14. Powell, J.P., "Universities as Sources of Social Criticism: Hotbeds or Cold Feet" in Hore, T, et. al., *The Future of Higher Education in Australia*, Macmillan, 1978, pp. 154.

15. McConnell, T.R., "Surfeit or Dearth of Highly Educated People" in McMurrin, S.M., (ed). *On The Meaning of the University*, Univerity of Utah Press, 1976, pp. 72.

16. Powell, J.P. op. cit., p. 148.

17. Beasley, Vic., "Participation and Equity: The Flinders Experiment", Flinders University, 1985, pp. 1.

18. Cameron, K. S., Whetten, D. A., *Organizational Effectiveness* Academic Press, 1983, pps. 261-274.

19. Finke, Russell, D., "Participation and Equity in Tertiary Education: Empirical Trends and Implications", Productivity in Tertiary Education Conference, Toowoomba, July 1986, pp. 2.

20. Hudson, Hugh, "The Dynamics of Resourcing Institutions", Conference on the Efficiency and Effectiveness Report at A.N.U, November 1986, p. 20/21.

21. C.T.E.C., "Review of Efficiency and Effectiveness in Higher Education", op. cit., pp. 18.

22. Scott, Peter, *The Crisis of the University*, Croom Helm, 1984, p. 271.

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